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PETROLEUM INVESTIGATION

HEARING

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

SEVENTY-SIXTH CONGRESS

THIRD SESSION

ON

H. Res. 290 and H. R. 7372

TO PROMOTE THE CONSERVATION OF PETROLEUM; TO
PROVIDE FOR COOPERATION WITH THE STATES IN
PREVENTING THE WASTE OF PETROLEUM; TO
CREATE AN OFFICE OF PETROLEUM CON-
SERVATION; TO AMEND THE ACT OF
FEBRUARY 22, 1935, AS AMENDED,
AND FOR OTHER PURPOSES

DECEMBER 11, 1939, AT NEW ORLEANS, LA.
JANUARY 16, 17, AND 18, 1940, AT LOS ANGELES, CALIF.

PART 2

(Note: Part 1—not so indicated—contains the November hearings at Washington, D. C.)
Index appears at end of hearing

Printed for the use of the Committee
on Interstate and Foreign Commerce



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MAY 2 1940

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PETROLEUM INVESTIGATION

MONDAY, DECEMBER 11, 1939

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE OF THE COMMITTEE ON
INTERSTATE AND FOREIGN COMMERCE,
New Orleans, La.

The subcommittee met, pursuant to adjournment, in the Roosevelt Hotel, New Orleans, La., at 10 a. m., Hon. William P. Cole, Jr., presiding.

Mr. COLE. The committee will please be in order.

In opening the hearings in New Orleans this morning it is possibly advisable to give a brief résumé of the past activities of this committee and to state briefly the reasons for our appearance here at this time.

In 1934 in response to a resolution in the United States House of Representatives directing this investigation of the petroleum industry, a subcommittee was appointed, of which I had the honor of being chairman. With the exception of Mr. Pearson, of Tennessee, who now serves in the place of former Representative Pettengill, of Indiana, since retired from the House, the same gentleman—Mr. Kelly, of Illinois; Mr. Pearson, of Tennessee, whom I have mentioned; Mr. Mapes, of Michigan; Mr. Wolverton of New Jersey, and myself—who served originally, constitute the present committee.

During the investigation of 1934 the States of Oklahoma, Texas, and California were visited. Hearings in each of those States were held by the committee and a report from the committee was submitted to the Congress in January 1935, which is a matter of public record.

It is a matter of common knowledge that prior to the introduction of the resolution directing the investigation in 1934 there was persistent demand on the part of many residents of the major oil-producing States for the enactment of the then-pending Thomas-Disney bill, which bill sought to vest in the Federal Government broad powers to regulate the petroleum industry in many of its activities. In lieu of the favorable consideration of this measure, the House Committee on Interstate and Foreign Commerce recommended an investigation. A resolution calling for such investigation was introduced, which was later approved.

During the investigation of 1934 our committee gave considerable encouragement to the formation of an interstate oil compact with the idea of having the oil-producing States through this method handle the problems involved in the proceedings now before us without much aid from the Federal Government.

We were privileged to attend the first meeting of the Governors of the oil-producing States held at Ponca City, Okla., in December 1934, at which time the Governors of the States of Texas, Oklahoma, and Kansas, and official representatives of the Governors of a number of the other producing States were present.

It was from the seed planted at this meeting that the initial interstate compact, approved by Congress in 1935, developed.

Since 1934, after the committee was discharged from further responsibility under the resolution referred to, we have been serving as a subcommittee of the House Committee on Interstate and Foreign Commerce for the purpose of considering all oil legislation referred to the main committee.

Since the proceedings of 1934 to date, the activities of the committee, presenting various reports and bills, are presented chronologically in the initial hearings held by the committee during the week of November 6, 1939. I will not, therefore, at this time review any of those reports.

On July 22, 1939, President Roosevelt addressed a letter to Hon. Clarence F. Lea, chairman of the Committee on Interstate and Foreign Commerce, which letter is also found in the hearings of November 6. This letter is of such importance for the purposes of this hearing, that I repeat it at this point. The letter reads:

THE WHITE HOUSE, Washington, July 22, 1939.

HON. CLARENCE F. LEA,

*Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives.*

MY DEAR MR. CHAIRMAN: On February 15, 1939, I transmitted to the Congress a report on energy resources by the National Resources Committee, wherein certain recommendations were made relative to oil and gas problems in the United States.

I believe it is consistent with these recommendations to invite the attention of your committee to the desirability of the early enactment of legislation which will provide a coordinated national policy in oil conservation. To my mind, the legislation should be designed to prevent avoidable waste in the production of oil and gas in the United States.

As you know, despite the progress which has been made toward oil conservation under State law and regulation, the production of petroleum is attended by waste. In view of the vital part which petroleum plays in the national defense, as well as its importance in commerce and industry, the prevention of waste in petroleum production should be the subject of an enactment by the Congress.

I appreciate the thoroughness with which the Committee on Interstate and Foreign Commerce conducted the petroleum investigation in 1934 in response to H. R. 441, but in the light of changes that have taken place, I believe the committee may wish to study developments since that time by investigation and hearings prior to the next session of the Congress. To this end, and with a view to the enactment of suitable legislation in the next session, I request that the petroleum-conservation bill which I today discussed with you and Representative Cole be introduced at this session.

Sincerely yours,

FRANKLIN D. ROOSEVELT.

Immediately upon the receipt of that letter a resolution directing further investigation, as the President recommended, was introduced, and simultaneously H. R. 7372, also referred to by the President, was introduced. This is the bill which bears the name of the present chairman of the subcommittee.

The committee is glad to report that at the hearings during the week of November 6, 1939, practically all of the work by the technical

staff of the committee was completed and filed in the proceedings. These reports bring up to date that part of volume I and all of volume II of the hearings of 1934, which received such general approval at the hands of all interested at that time.

Following introduction of the technical research to which I have referred, the position of the Federal Government, supplementing the attitude of President Roosevelt, as expressed in the letter heretofore read, was presented. That presentation included statements from the War Department, the Navy Department, the National Resources Planning Board, and the Secretary of the Interior, Hon. Harold L. Ickes.

The committee felt that while the investigation and all testimony pertaining thereto would not be concluded by January 1 next, before the next session of Congress convened the oil-producing States should be given an equal opportunity with that of the Federal Government to present such testimony as they desired for a record which would be available early in the next session of Congress. With this in view, the suggestion by several States that hearings be held in some central point, at which time the oil-producing States would appear, was accepted.

After numerous exchanges of correspondence between all concerned, it was agreed that New Orleans be the place. The committee is glad to announce that since the announcement of this session of the committee in New Orleans an invitation to the oil-producing States to appear through their respective Governors or regulatory commissions has been most heartily responded to, which assures a very full and interesting hearing.

The provisions of the resolution which authorize this committee to function, as well as the provisions of H. R. 7372, are well known to all who have signified their intention of appearing before this committee. The committee asks, with the idea of conserving time and meeting the program ahead of us, that the time allotted to various witnesses be followed as closely as possible and that their testimony be directed to the issues before the committee. The testimony today will be from representatives of the State of Texas and also the Interstate Oil Compact Commission, speaking through its chairman, Col. E. O. Thompson.

The other States will be heard by the committee in the following order:

Tuesday: Mississippi, Louisiana, Arkansas, Kansas, New Mexico, and Michigan.

Wednesday: California and Oklahoma.

Prior to our arrival in New Orleans the committee visited the following fields in the State of Illinois:

Loudon, Noble, Clay City, Salem, and Centralia.

The Governor of Illinois has addressed an important communication to the committee, which I shall read and insert in the proceedings at a later date.

The testimony taken in New Orleans will not be available until the reporter returns to Washington. Immediately upon the preparation of the transcript of these proceedings copy of the testimony for the purpose of revision will be forwarded to the various witnesses with the understanding that all must be returned in revised form to the committee in Washington not later than December 30. If such revised

statements are not returned by that time, the printed record will be made up from the unrevised copy of the transcript of such witnesses' testimony.

For the benefit of the State representatives Mr. Layton, clerk of the committee, and Mr. Perley, legislative counsel of the House, at this time will arrange with you for the time of making your statements. If you want to rearrange the appearances tomorrow, do so by consulting with Mr. Perley, and I am sure that any request along that line can be accommodated.

While in Illinois Friday and Saturday the committee enjoyed the pleasure of being with Representative Martin, Representative at Large from that great State, who lives at the city of Salem.

In the room today the committee is glad to recognize the presence of Representative Boren, who, while not a member of this subcommittee, is a very useful member of the main and important Committee on Interstate and Foreign Commerce of the House.

We also have with us Representative DeRouen, of Louisiana, in whose State we are today; and we are delighted to have both of these gentlemen at the table with us.

The committee will now hear the State of Texas, in such order as the State has arranged. We are prepared to give you all the time you want today.

Mr. DOWNING. Mr. Chairman, I will say that the State of Colorado would like to be put down on the list of those who would like to be heard.

Mr. COLE. Are you prepared to be heard today?

Mr. DOWNING. At any time.

Mr. COLE. We will be very glad to hear you, sir, and there is a probability that you will be heard Wednesday if not this afternoon.

STATEMENT OF ERNEST O. THOMPSON, MEMBER OF RAILROAD COMMISSION OF TEXAS AND CHAIRMAN OF INTERSTATE OIL COMPACT COMMISSION

Mr. THOMPSON. Mr. Chairman and gentlemen of the committee, the State of Texas is represented here today by Commissioner Jerry Sadler and myself. Our chairman is Hon. Lon A. Smith, who intended to come, but he had an accident, sprained his ankle, and asked that his kind regards be given to the committee and his excuse made. He has, however, joined with me in this statement, so the statement you have before you is the combined statement of Chairman Lon A. Smith and myself. Mr. Sadler will appear right after me, so you will hear from the entire commission.

May I proceed at this time?

Mr. WOLVERTON. Mr. Chairman, may I inquire from Colonel Thompson whether the statement he is about to present to the committee represents the views of the Railroad Commission of Texas and also the Interstate Oil Compact Commission?

Mr. THOMPSON. Mr. Chairman and Mr. Wolverton, the statement that I am going to make, as I have just stated, represents the views of our commission, Mr. Smith not being here but joining in this statement with me, and Mr. Sadler will follow me with his statement. It does not reflect the views of the Interstate Oil Compact

Commission for the reason that we had hoped and still hope the committee will give us an opportunity to review the record as made up to date so we can see what the Government's case is in order that we may answer each and every item made thus far.

MR. WOLVERTON. The reason I asked that question, Colonel Thompson, is because your statement is headed:

Statement of Ernest O. Thompson, member of Railroad Commission of Texas and chairman of Interstate Oil Compact Commission.

MR. THOMPSON. I happen to be the chairman of that commission, but it is not the statement of the compact commission as such because we have had no chance to get together and formulate the views of the compact commission as such. We intend shortly to have a meeting of the compact commission with a view of carefully preparing a statement from the compact commission's standpoint, and we hope that at some later time the committee will give us an opportunity to review the work of the compact commission up to date and, further, we hope to be able to read the record thus far made, if we would be allowed to do so, and perhaps then we could answer some of the points made heretofore.

MR. WOLVERTON. My only purpose in asking the question was to make clear whether the opinions you express in this statement are to be considered by the committee as the final opinion of the Railroad Commission of Texas and also the Interstate Oil Compact Commission. I understand from your answer that it is not to be considered in any way the viewpoint of the Interstate Oil Compact Commission.

MR. THOMPSON. That is correct, Mr. Wolverton.

MR. Chairman and gentlemen of the committee, I am grateful that we have a committee with the energy and the desire to make a thorough survey of the oil industry so that the Congress will be given a complete picture. The exhaustive investigation made by you gentlemen of this committee in 1934 and your constant study and interest in the oil industry has made each of you well informed on its problems and the way they are being successfully solved.

We have just celebrated two Thanksgivings in Texas. We have good reason for double celebration so far as oil is concerned. Our people are prosperous, our oil reserves are on the increase, and, what is most important, our State is still sovereign as regards production control of oil.

We still have our American form of government and while it may not be tiptop efficient it is still democratic; our States maintain sole control of their own oil, and that is of the essence of sovereignty.

We are doubly grateful that the same excellent committee is today again, after 5 years, to recheck on conditions in oil production. We can now come before you and show that the problems of overproduction that bothered us in 1934 are no longer present. Production of crude petroleum is being held strictly within the market demand.

Huge overhanging surplus stocks of crude oil in tanks above ground have been reduced to 230,000,000 barrels. This is close to the figure of the estimated amount necessary to have on hand in order that the industry may function without interruption.

In 1934 the crude stocks were about 100,000,000 barrels higher than today, that is, included in tanks in above-ground storage.

Testimony before our Texas commission by leaders of the oil industry is to the effect that the stocks of crude should be somewhere from 200,000,000 barrels to 260,000,000 barrels in order to insure uninterrupted operations.

It is of interest to note that those low on crude testified to the higher figure and those longer on crude in storage testified to the lower figure as being the desired and required amount of crude oil to be held on hand in tanks above ground at all times.

If you take the high figure of 260,000,000 barrels of crude oil required for safe requirements and then take the figure of 200,000,000 barrels testified for by other leaders of the industry, divide those, the sum of the 2 figures of 200,000,000 and 260,000,000 by 2, you will find that the average estimate of the desired amount of crude oil in storage above ground is 230,000,000 barrels.

Strange as it may seem, the exact amount of oil in storage in tanks above ground in America on November 11, 1939, was 230,037,000 barrels.

Officials of sovereign American States have achieved this efficient statistical position by the use of good old common sense and without anyone saying, "You must do thus and so."

It shows to me, Mr. Chairman and gentlemen of the committee, that it is possible to have efficiency in even our free and easy democracy and the sovereign States can and will and are doing a good job for all America.

In spite of the fact of new fields in Illinois, where they have not yet agreed upon oil-conservation laws, I point out to you that as a Nation the November 1939 estimate of market demand as set by the United States Bureau of Mines for each and every day of November 1939 was 3,620,000 barrels of oil whereas the actual production for the week of November 18, 1939, for the entire United States was 3,596,575 barrels per day or some 25,000 barrels per day less than the estimated demand.

I point out to this committee that we find ourselves with crude-oil stock at the average of proper position and current production of oil well within the figure as estimated by the very efficient United States Bureau of Mines.

So, I say, we are doubly thankful to be able to present you a picture of efficiency that shows no need for any interference on the part of the Government.

Certainly there must exist some need or emergency before the Federal Government would concern itself with taking over the powers of the States. I feel sure there must be some necessity for it before this committee would recommend this bill under consideration to the Congress.

Surely so long as the States are doing a workmanlike job there need be no Federal alarm or control.

Certainly the Federal Government should be happy over the fact that in these days of problems and depression here is one American industry that is not looking to the Federal Government to be saved.

Here is one industry that is not asking for any subsidy or Federal aid.

Up in the Panhandle of Texas it was discovered that there was a great supply of gas that yielded helium. The Federal Government

thought that it needed this helium for national defense so the United States Government promptly purchased in the open market 50,000 acres of this helium-producing gas land. There the United States Government displayed the proper spirit of securing what it needed for national defense. It thought we needed helium, therefore the United States Government bought the necessary land to produce the needed helium from the gas coming from that land.

This is just as when the Army needs clothing or shoes it buys what it needs.

It is not proper for the Government to hold oil development back just because it might some day want the oil. Our military policy of national defense has never proceeded on these lines. Our military establishment has always had to find its requirements wholly within the appropriations made by the Congress of the United States.

I speak with some understanding on this subject as an enlisted man and a commissioned officer of some 20 years' service, always as aggressive as the next man in the interest of national defense.

If the Army or the Navy need additional oil for defense, let the Congress make appropriation to buy such reserves and hold them against the need. That is the traditional method.

Along about the year 1925 a great hue and cry went out over the land that we were about to exhaust our petroleum supply. At that time it was estimated we had oil reserves of 5,500,000,000 barrels in the United States. Since that date we have produced and consumed or sold 11,000,000,000 barrels of oil and yet today we still have seventeen or more billions of barrels of oil reserves uncovered and ready to be produced as needed. Also we are able to get double the amount of gasoline out of each barrel of oil. We have truly not run out of oil.

Our discoveries have kept pace with our consumption.

The technique of discovering oil and the science of producing it are going forward at an amazing pace.

The oil industry is free of labor trouble. Its workers are the best paid of any major industry and only recently Commissioner Lubin took occasion in a public hearing of the Temporary National Economic Committee to compliment the oil industry on its fine labor relationship.

We have worked in complete harmony with our sister oil-producing States through the agency of the Interstate Oil Compact.

The strength of the compact lies in the fact that it has no compulsion in it. It has behind it the greatest force on earth, that is, the power of enlightened public opinion, and that is all the force that any governmental agency needs.

I feel that the oil-conservation efforts of the States is one of the hopeful signs of progress in that the States have brought about an intelligent use of the best engineering methods under law of the States under their police power to the end that the greatest ultimate recovery will be had.

I am sure this committee will be glad to learn that the number of independent oil operators in Texas has increased 2,000 in the last 5 years.

This increase in the number of independent operators shows that they are prospering.

All over our State you can see evidence of their permanent prosperity in their increasing investments in farms and ranches and by the splendid improvements these independent oil men are making on these thousands of newly purchased farms and ranches.

Our independent oil operators under proration no longer have any trouble finding easily available loans at as low as four percent interest on 36 months' time with which to develop their producing properties.

In fact, eastern banks are constantly on the search for such loans because production has been controlled and made greater the security of the loan. The banks now know that the oil will be produced at a proper rate and the fields will not be ruined by overproduction.

This is a most interesting development of the past 3 years.

It became a fact when we got our conservation orders sustained and upheld.

When the bankers saw that production was actually being controlled oil loans quickly were changed from the classification of speculative to perhaps among the most desired and dependable security a bank could lend its money upon.

The greatest thing I have noticed in the evolution of proration is that the people of Texas have come to rather fully understand that by limiting the flow of an oil well the motivating or propulsive energies are conserved and that thereby vastly greater amounts of oil will be recovered from the producing sands.

This has been accomplished by thousands of educational hearings and lectures and booklets and by the efforts of our colleges, public schools, and universities.

Our Texas free school and higher educational system is to a large degree financed by the money raised from oil taxation; 134 of our 254 counties now produce oil and exploration is going on in 100 more counties.

Oil is the very economic lifeblood of Texas. So, naturally, we feel that we would be recreant to our trust if we did not guard zealously the control of the State of Texas' greatest asset.

We feel that we have been good stewards of this resource in providing by State law for its sane conservation through waste-prevention statutes and that our enforcement of these laws has met with the general approval of those upon whose property we have administered and by the public as a whole.

Certainly when the smallest operators can readily get all the money they need to operate and develop their oil properties from hard-headed eastern bankers we must be convinced that there is strong dependence being placed upon the State's efforts.

Five years ago the experts estimated the total ultimate recovery of the East Texas Field would be 1,500,000,000 barrels of oil.

We have already produced that amount of oil from the field and now the same experts have raised the estimated ultimate recovery to 5,000,000,000 barrels of oil.

No one now contests the wisdom of the State's method of handling the field as a whole. They admit a fine job over all has been done. They admit that we will get a 3,500,000,000-barrel dividend on conservation efforts in that one field alone. The only arguments we now have are over who gets what and how much.

In new administrative efforts like proration and conservation of oil we must proceed with caution. We have made great progress and I can see no need whatever for the Federal Government to pass any further laws.

I am hopeful that this committee will see the progress we have made and are continually making and will recommend to the Congress that no further Federal laws are necessary.

Reserves of oil are being steadily built up.

The consumer is getting a constantly improved product at a constantly reduced price.

The States are working in harmony.

Production is in balance with consumption.

Overproduction has been stopped and waste is being increasingly prevented.

I submit that it is better that we get the job of oil conservation done by the States themselves than to further centralize our Government in Washington.

I do not admit that the Federal Government could do a better job. In fact, I firmly believe the Federal Government could not do any better job than has been done by the States.

But granting, for the sake of argument only, that it could do a better job, I strongly believe it is far better to stay by the American form of government and keep our control close at home where the people can have a more direct and responsive control over their State resources than to turn them over to some Government bureau far removed from the people.

I have a transcript of our hearings here of the Railroad Commission of Texas held in Austin, Tex., August 28, in which we took evidence under oath from the industry on the question of how much oil was needed to have above ground at all times in order that an economic level would be met, and I have brought six copies of that transcript to support the statements in my paper as to how much was needed, and I am glad to submit that transcript for your consideration. It substantiates the conclusions that I have drawn here.

Mr. WOLVERTON. Before you pass from that, does that record that you have just submitted justify the action that was taken by the Texas Railroad Commission in shutting off production of oil in August last?

Mr. THOMPSON. I think it more than justifies it clearly.

Mr. WOLVERTON. Does it deal with that subject?

Mr. THOMPSON. Yes; it does, in detail.

The question that came up at that point, Mr. Wolverton, was that some companies thought that there was an excess of oil above ground and gave that reason as a reason, as set out in this hearing in Mr. Weiss's testimony. Mr. Weiss is president of the Humble Co.

Mr. WOLVERTON. That seems to be a rather voluminous record. If it is convenient for you to do so I would appreciate your pointing out that portion of it.

Mr. THOMPSON. It is in the very first six pages. Mr. Weiss, in his statement there, gives the Humble's reasons for their action, saying there was too much oil on hand. All the State did was to close in for 15 days. We had been closed in 8 days a week for 2 years and have been up to the present time, the month of December.

Mr. MAPES. Eight days a week?

Mr. THOMPSON. I mean 8 days a month. Thank you very much for the correction.

We had been closed 8 days a month, Saturday and Sunday each week. That is, for 2 years we have been doing that, or for more than 2 years. Last month we were closed for 11 days.

This month we were closed for 12 days. It is simply a question of so many wells having been drilled, so much success having been met with in the finding of oil, that to drill more and more wells, naturally, you produce more than is needed and can produce more than is needed in a shorter and shorter time. So shut-ins are no innovation to us because we have been doing it right along. We, as I just stated, shut in for 2 weeks, and we had some very beneficial effects in that the pressure, as I show on that chart, was built up appreciably, and I have just received a paper from Mr. Crowell, from Arkansas, showing the same result achieved in the Magnolia Field in Arkansas, and I wish to submit this chart for that field, which shows that nature acts the same in Arkansas as it does in Texas; it built up bottom-hole pressure.

Speaking of the question of bringing in new fields, I have a document here showing the new fields discovered in Texas since you gentlemen last held your inquiry in 1934. New oil fields discovered in Texas during the years 1934 to 1939. I bring this in just to show you how Texas has been getting along since you were here last.

In 1934 we brought in 27 new fields; in 1935, 30 new fields; in 1936, 54 new fields; in 1937, 68 new fields; in 1938, 52 new oil fields; and in 1939, already 63 new oil fields. It seems that there is oil everywhere and every time the bit goes down it brings forth oil.

Mr. MAPES. What is the total production of those new fields which have been discovered since 1934.

Mr. THOMPSON. You mean how much is the reserve in those fields? We are not producing any more than we did; we are just giving each well less and less every time a new producing well is put down. The average in the State now is 13 barrels per well. There are 89,000 wells in the State. Fifty-five thousand of them are pumping and the balance are flowing.

Mr. MAPES. The Bureau of Mines did not give you the right to produce any more than you produced before those discoveries were made?

Mr. THOMPSON. The Bureau of Mines figures, Mr. Mapes, take no consideration of the ability to produce. They just indicate how many automobiles are in use and how much gasoline is going to be required, and they convert that into crude and it is distributed according to past experience, like it rained last Wednesday, it is going to rain next Wednesday.

Mr. MAPES. Of course, it amounts to the same thing in your State. You produce the same amount regardless of the number of pools.

Mr. THOMPSON. It does not make any difference how many wells, we get the same allowable. I can illustrate it by this—

Mr. MAPES. Of course, probably all of that may be due to the fact that you have such a big production in your State. If a State has a small production and found a good deal of oil it would be allotted more than its allotment when production was smaller.

Mr. THOMPSON. Well, the question of allotting, the estimate of the Bureau of Mines is simply an estimate of about how much will be

moving. They take the movements and the trends. Illinois is a good example. They were not producing very much oil until they brought in their new fields. As a matter of fact, we used to have a good deal of fun with Mr. Bell, who used to come to the compact meetings. We would ask him where that well was in Illinois. Now, of course, they are producing 315,000 barrels a day. They have made their place in the picture.

The Bureau's market demands are estimated by performance in past years, a perfectly natural way for it to come about, too.

This free competition between the States is a good thing and it makes its own way. A new field comes in, just like a new field in Texas, and it takes part of the market formerly held by another.

Mr. MAPES. Getting back to your suggestion, what are the estimated reserves in these new fields that have been discovered?

Mr. THOMPSON. We have discovered additional reserves since 1934. We now have about 9,000,000,000 barrels in reserve in the State.

Mr. MAPES. Is that due to the discovery of new fields entirely or different estimates on the old fields?

Mr. THOMPSON. Well, the old fields—in east Texas, as I have indicated—they have raised their estimate 3,500,000,000 barrels. They said formerly that they would get 1,500,000,000.

Mr. MAPES. What I am trying to bring out is the mere fact you discover a number of fields, unless we know something about the amount of oil that is in each field or the aggregate number of new fields it does not mean much, does it?

Mr. THOMPSON. Yes; it means this: That we are not running out of oil; we are getting more and more. We are getting more fields and they are good fields.

Mr. MAPES. It does to some extent, but unless we know how much oil you have—

Mr. THOMPSON (interposing). But I have a list of the potentials of each of those fields attached in this data giving you each field and how much we estimate it is.

Mr. MAPES. Can you give it to us in round figures?

Mr. THOMPSON. Well, the difference since 1934 is about 4,000,000,000 barrels increase.

Mr. MAPES. I will ask again, is that due to new discoveries?

Mr. THOMPSON. It is; yes; that is correct. I am sorry I did not catch your question right off.

We have not only produced and found new fields, produced more than we have consumed, all that is necessary to meet all needs, but we have built up reserves more and more and we have had to reduce the allowables, well by well, as the new fields came in.

Just like additional wells come in within a field, you have to reduce the other wells to make room for its production. We have a method of indicating to each well in the State how much oil it is allowed and here is the schedule for the East Texas field [indicating] and these are the individual wells of the State; each well, giving each well and each field, with the allowables for each well. There are 88,000 or nearly 89,000 wells.

I thought it would be interesting to the committee to know how we handle it. These are shown here after the hearings [indicating].

Now, I have some exhibits here. I hope the committee will let

me hurriedly point to them. They have been prepared for the committee so that you can take them along with you.

This first map is a new map showing the location of 12 new fields in the State, and you see they are located from one end of the State to another. That shows 134 counties all producing oil, out of 254, and exploration is going on in 100 more counties. Forty-five million acres are under lease for oil and gas in the State. It looks like we are going to find oil in about 100 more counties.

Mr. MAPES. What do you mean by "exploration" in that direction?

Mr. THOMPSON. Active drilling or geophysical work looking for oil.

Mr. MAPES. Are they actually putting down wells in those 100 counties?

Mr. THOMPSON. Yes, sir. They are keeping it up all over the State and with a great deal of success. Last year in three wells out of four that were drilled they got oil. Only one-fourth were unsuccessful.

Mr. MAPES. In the wildcat areas?

Mr. THOMPSON. No, no. I am taking the whole. In the wildcat territory, of course, it would be a great deal smaller than that.

This other map shows the pipe lines of our State and you will see they are pretty well covered, cover the whole State of Texas. There are 57,694 miles of trunk pipe lines covering the State. I have not indicated on here any gathering lines whatsoever, but just the main trunk lines. But there are 57,694 miles of those main pipe lines; 10,165 miles of gas trunk lines, the gathering lines again not being shown. We would cover too much if we were to include the gathering lines.

The average traffic load was 1,848,000 barrels. That is in the movement of oil. Of course, in the movement of oil, much of it moves through from New Mexico in through Texas. That amounts to about 100,000 barrels a day, because it is their only method of getting to the coast. A good deal of oil moves through from Oklahoma and Louisiana also. The traffic is a good deal greater than the production of the State, because oil comes through from New Mexico, Louisiana, and Oklahoma, going to the seaboard.

This map shows the refineries of the State. The little red dots show the refinery locations. You see, there are a good many of them. There are 166, refining a total of 1,724,000 barrels, or slightly less than the traffic, because the balance is shipped coastwise; across the ocean, some of it, although trans-Atlantic shipments are greatly reduced at this time because of the hazard of exposure and that has fallen off a great deal since the war began.

Mr. MAPES. What is the tendency in Texas as to the increase or decrease in refineries in the State?

Mr. THOMPSON. The number of refineries is slightly smaller, but the plants are bigger and more efficient. Skimming plants have pretty well gone out because of the more efficient method in cracking and newer processes are being discovered.

Mr. MAPES. Does that mean that you are refining more crude oil in the State?

Mr. THOMPSON. We are refining more than we were 4 years ago by about 400,000 barrels. There are fewer refineries, because the little plants, the skimming plants are not efficient enough to be kept in business.

Mr. MAPES. I had the impression that the tendency was for the refineries to go to the consuming areas.

Mr. THOMPSON. Well, here they are [indicating on map], 116 from all over the State, with a capacity of 1,720,000 barrels.

The point is, and I take a good deal of pride in pointing it out, that here is one industry in our State that is finishing in manufacturing almost the total amount that we produce, which is a healthy condition, in that we are manufacturing into finished products 1,720,000 barrels per day; using labor in the State and getting the utmost out of the production.

Mr. WOLVERTON. You spoke of an increase in the amount to the extent of 400,000 barrels; over what period was that?

Mr. THOMPSON. Since 1934.

Mr. WOLVERTON. Does that represent a per-day or per-year increase?

Mr. THOMPSON. Per-day.

Mr. WOLVERTON. That is a very large percentage of the total, is it not?

Mr. THOMPSON. Yes; it is. It is a fast-growing business, and when we find a new field, a new refinery comes in shortly afterward.

Mr. COLE. May I interrupt for a moment? Mr. Maloney, a distinguished Member of Congress from Louisiana, has just entered the room. We are glad to have you, Mr. Maloney.

Mr. THOMPSON. This little graph here [exhibiting graph] shows the East Texas pressure release map, the different colors showing the different pressures in the various areas of the East Texas field. We got this up for a court case. I just brought it along, thought perhaps you would be interested in seeing how the case was presented as a court case. By the way, we are having a great deal more luck than we used to have in winning our cases in court. It takes time for us to learn how to present them. There is no reflection on the way we presented them before. We just did not know how. We did not know what we were doing in the beginning, because you remember Judge Hutchinson ably said in the *Peoples case*, we were looking for a forbidden thing, namely, price, rather than conservation; but when we shut the fields down in 1933, we were able to immediately build the pressure right up, and the court said, "Well, you have got something there," and they saw that restrained production did mean that we were getting greater utility out of the pressure.

Mr. COLE. What is the meaning of this exhibit?

Mr. THOMPSON. It is an exhibit showing the pressure within the field. This is the pressure areas as shown by the tests we made.

Here is a little exhibit here we used in another court case showing how the pressure is taken in the East Texas field.

Mr. COLE. Will you, for the purpose of the record, describe the exhibit a little more in detail? Of course, where you refer to it as "here" and "here," that will not appear in the record.

Mr. THOMPSON. I understand. I have here before the committee an exhibit that we prepared in a lawsuit. Shown on the top side of the exhibit is a map of Texas, showing the Fort Worth and Dallas area as indicated by two tall buildings, and the East Texas field over by Kilgore and Longview, and Denison, indicated by a long liver-shaped green marked area. And, the purpose of this exhibit is to show how the pressure is built up in the woodbine sand. The red area indicates the Fort Worth-Dallas strata, and on up to the Okla-

homa line (indicating on map), extending down through Cook County, Denton, Clay, Johnson, and Mill Counties, showing an outcropping of the Woodbine sand.

Mr. MAPES. I always thought that East Texas was really the heart of the oil business; but I notice that you call it the liver. [Laughter.]

Mr. THOMPSON. It surely is the heart. There is no reflection because it is liver-shaped. It is still the heart. That is very good humor. I am glad to see that the committee is in a humorous vein today. It relieves me a great deal, because I am awed by your august committee, and I am sure that this humor relaxes and eases me up.

Mr. MAPES. The importance of the field is on the record. That is all that is of importance.

Mr. THOMPSON. It is the heart of the oil-producing business. That is true.

This red indicates an outcropping of the woodbine sand. If you drive between Fort Worth and Dallas you can see the uplift where it comes out.

I have carried it down in this exhibit, down through underneath here [indicating on a large box upon which exhibit was drawn] the earth showing the formation; how the water comes from creeks and rivers, and comes in contact with the outcropping, highly penetrable woodbine sand. The water hits that and trickles down through this sand 3,300 feet under the ground until it comes in contact with the oil-saturated sand under the east Texas field and we found that if we do not take the oil from the whole field combined any faster than the water can trickle in behind it and fill the void, we can maintain constant pressure; just like you can take a certain amount of water out of a dam and let the same amount come in, and you will have a constant hydrostatic head, and that is as simple as that in the control of production of the east Texas field. We have demonstrated that, which I shall show you on this chart.

This only graphically illustrates the point more clearly as to what does happen [exhibiting chart].

We found that if we opened up and produced greatly in excess, why, the pressure is dropped, because we are getting ahead of the intrusion of water and we have proven that so many times by shut-ins that we know definitely that that is so.

Mr. COLE. If this field is not operated in that manner, am I right in saying that it will result in considerable underground waste?

Mr. THOMPSON. If the field is not operated in a manner to keep the production of oil wells combined at a figure not so great but what the water can trickle in behind and keep up with the removal of the oil. If that were not done the pressure would drop at once, and when they got to a point, in the east Texas field, of 765 pounds, or thereabouts—a few pounds one way or the other—the gas would come out of the solution, and the oil, which is sticky, heavy, like tar, sticks to the grains of sand and will never be removed, or if removed will be much more difficult, and less of it.

Mr. COLE. That is what you commonly refer to as underground waste?

Mr. THOMPSON. That is right; that would be left in the ground never to be recovered. What we seek to do is to keep the gas in solution so as to keep the oil foamy, like the froth on beer, if you know what I mean [laughter] on pressure so that it will move freely

between the space between the grains of sand, and you can get every bit of it out. We have tested that. It is exactly like the froth on beer, or if one does not understand that, the beads on Coca-Cola when you shake it up. [Laughter.] The purpose is to keep it in bubble form. As long as you can keep this oil in bubble form, in a loose state, it moves freely between the grains of sand and will not cling to them, and that is the heart of this conservation movement, keeping the pressure up by not removing the oil faster than the water can infiltrate into the voids.

What is true of that field is true of every other water-driven field.

That is the reason that I mentioned the Magnolia shut-down in Arkansas and that it responded in the same way.

We never would have known this if we had not been forced to shut the field in, because they could not sell the oil. We found out by accident, to tell you the truth. We had to shut the field down to get control of it, and so we try to observe the pressure under shut-in conditions, because we hoped to find many scientific facts.

Mr. COLE. Suppose instead of operating the field the way you are, you were to adopt a method such as the committee has recently seen in fields, where they are running 24 hours a day. What would be the result in this fine field?

Mr. THOMPSON. Well, each field, Mr. Chairman, will have to be studied itself. Each field is a separate study—even wells.

Mr. COLE. I appreciate that.

Mr. THOMPSON. But as a general proposition you should not produce them faster, in a water-driven field, than the water trickles in behind the oil, so as to maintain your pressure. If the pressure is taken off, the gas comes out of the solution and becomes inert, and you have less recovery than if you kept it under pressure and kept the gas in the solution.

I think that our recovery estimates in general, the revision from $11\frac{1}{2}$ billion to 5 billion barrels, is because of the manner in which the field has been handled.

Mr. MAPES. I want to ask this some time, Mr. Chairman, and I may as well do it now as at any time.

In determining what the pressure should be and how fast the oil should be taken out, and how fast the water will follow in, do you do that with your own engineers or do you hold hearings such as you had on this other question and get the expert testimony of the petroleum engineers and of the companies?

Mr. THOMPSON. Well, sir, we hold hearings once a month on every field in the State. Then we have hearings every day, sometimes two or three hearings going on at a time, on a particular field, and we have 60 engineers who are constantly making checks themselves; and then we compare with other engineers' work at these hearings.

Mr. MAPES. You have 60 engineers in your State commission?

Mr. THOMPSON. Yes, sir; we have 450 employees in the oil and gas section of the conservation branch; 450 employees.

Mr. MAPES. They make independent findings of the reservoir energy?

Mr. THOMPSON. Yes, sir.

Mr. MAPES. How fast is it being dissipated?

Mr. THOMPSON. We take the East Texas field, for example, where we check 92 test wells each month. They must be the same wells. We do try to determine what the pressure is. If the pressure drops we immediately reduce the rate of flow.

Mr. MAPES. Is it possible for you to tell the committee how generally or to what extent the judgment of your State engineers differs from the judgment of the engineers of the companies on the question of reservoir energy?

Mr. THOMPSON. They generally hit it on the head right together. It is an exact thing. The pressure is taken by lowering a tube which has a recording instrument in it, and you put that down into the well and leave it there for a certain period. Then you take it out and open it up, and the recording is made. It is an exact thing. The only difference would be as the result of an error in your gage.

Mr. MAPES. So far as the spacing of wells is concerned, that is not an exact science, is it?

Mr. THOMPSON. What is that?

Mr. MAPES. The spacing of wells, exactly the way it is done—

Mr. THOMPSON. I beg your pardon. I thought that you were talking about taking pressure.

Mr. MAPES. I was; but I am asking about spacing of wells now.

Mr. THOMPSON. Oh, spacing is variously calculated by all sorts of ideas. Some people want short spacing. Others want wide spacing.

Mr. MAPES. Then, different engineers might differ as to proper spacing of wells?

Mr. THOMPSON. The chances are if you had two engineers you would have two opinions. They are like lawyers.

Mr. MAPES. But you do not think that they can differ as to reservoir energy?

Mr. THOMPSON. That is like taking the temperature of fever patients. There might be a difference or an error in the thermometer. There might be a difference or an error in the gage. But it is an exact thing if the instrument is correct.

On the question of spacing, it is interesting to note, I am sure, that we have constantly in Texas gone to broader and broader spacing until our spacing now is 1 well to every 40 acres, whereas years ago it was 1 well to 2 acres. In fact, the State-wide rule at one time was 1 well to 2½ acres. And you will recall that we have gone to 1 to 5 acres; 1 to 10; 1 to 20; and 1 to 40. The operators in a field endeavor to get engineering data and take the recommendations of the engineers on what would be the proper spacing for that particular field. If it is a highly permeable and porous sand, wider spacing could be had than if it is tight limestone.

Mr. KELLY. Are the new fields now being developed on a ratio of about 1 to 40 acres?

Mr. THOMPSON. I would say 1 to 20, Mr. Kelly, but not as low as 1 to 40. We have tried to get them to make them 1 to 40, because obviously we have got so many wells in production that getting another well will not give us any more market, so we have tried to have them drill them as wide apart as we can, because our problem is to find a market for the oil and not to find oil.

I am happy to say that I am able to tell you that every well in the State is connected, selling its allowable each day. We have no unconnected wells like we had when you were here before. I think we had

about 500 unconnected wells when you were here in 1934, whereas today we have not.

Mr. MAPES. Personally, I am interested in this engineering staff that you have.

Mr. THOMPSON. Yes, sir.

Mr. MAPES. And the extent of its work and the ability with which it does its work. In the different States the provision for staffs has a bearing on some of the proposals in the Cole bill.

Mr. THOMPSON. Yes, sir.

Mr. MAPES. Has your staff gradually increased during the years or not?

Mr. THOMPSON. Oh, yes, sir; 7 years ago, Mr. Mapes, we had a very small staff. We have built it up gradually. For example, this last year we hired the entire graduating class of the University of Texas and A. and M. College in petroleum engineering; we hired the whole class. We cannot keep them very long, because the producers hire them away from us and pay them more salary than we are able to pay. We get more and more engineers now, because petroleum engineering is becoming a very popular subject in our university, because of the fact we are able to give them jobs.

Mr. MAPES. What is the average length of time an engineer stays with you?

Mr. THOMPSON. I would say that our average is about 11 months, or 12 months, and by that time a new crop comes along. It is good, though, to have them hired away, because they go into the industry with a full understanding of the State's requirements.

Mr. MAPES. They cannot be very efficient in passing on these other important questions.

Mr. THOMPSON. We have head men, Mr. Mapes. These young petroleum engineers simply go out and do the leg work in the field, making tests. Policy making is determined by the head men.

Mr. MAPES. How many experienced men do you have on your engineering staff—that is, those who have stayed on rather indefinitely?

Mr. THOMPSON. I suppose we have 40 permanent engineers who have been there for 3 or 4 years. You see, the whole science of petroleum engineering is so new that you cannot get an old head. The chances are that if you sent for the head petroleum engineer of one of the big companies, some young fellow who looks like he is just out of college would respond as being the head man. It is a new science. It is just for a few years that they have been doing it. They used to say that a petroleum engineer was a geologist who had seen an oil well. Now it is an exact science.

Mr. MAPES. The question which I have in my mind is this: To what extent are you able, with your engineers, to do the work which the Bureau of Mines might do if the Cole bill were enacted?

Mr. THOMPSON. We can do it just as good as the Bureau of Mines or anybody else is doing it.

Mr. MAPES. It does not seem to me that you could with men who are just out of school and who only stay with you 11 months.

Mr. THOMPSON. Well, you would be surprised how well we are getting the job done. We are not looking for any help in taking any bottom-hole pressures in Texas. It just simply consists of putting a test tube down in the well, and a boy who has graduated from college can do that just as well and probably better than some old fellow who

has been at it for 40 years, but without the training which these young petroleum engineers have. They come out very well prepared, Mr. Mapes, and we give them work during their college career in the summer too, part-time work, field work. They are the same type of men that the industry is hiring, Mr. Mapes. They are the only ones who are available. They are new men, young men.

Mr. COLE. What is the administration of your commission costing the State today?

Mr. THOMPSON. \$740,000 a year. It is not costing the State that. It is made up from assessments from the oil industry itself.

Mr. COLE. That amounts to about three-tenths of a cent per barrel?

Mr. THOMPSON. That is correct.

I have here a brief in a recent case which we had. I thought that this might be of interest to the committee. It is a very important case. It is an Humble case, the case of *Rowan v. Nichols*. These questions to be decided were who gets what and how much. What I mean by that, is that they argue before the Commission and one man says that he is not getting enough and somebody else is getting too much. The question is equalizing within the field. But, that is not a conservation problem. That is a question of dividing up the property, and you never have a perfect division, because no one knows what is under the ground, completely. It is at best an approximation.

You know, we have pretty good proration when everybody is kicking. That is the best sign, when everybody thinks the other fellow is getting more than he is, and he is not getting enough. That is just a fine situation.

Mr. KELLY. Colonel, what about the Illinois situation, what effect does that have on the other oil-producing States?

Mr. THOMPSON. I beg your pardon.

Mr. KELLY. With the State of Illinois operating the way they are, without any oil laws whatsoever, what effect does that have upon the production of oil in other States, including your own State?

Mr. THOMPSON. Mr. Kelly, you have just asked me the question of what effect other oil States that do not have laws have on us. Is that the question?

Mr. KELLY. That is right; yes.

Mr. THOMPSON. I will say this, that the best illustration is Illinois. Illinois has made her own way in the oil picture. If you had had some kind of a viselike control, the new discoveries of oil fields in Illinois would not have made themselves immediately available to the market. They could not have broken into the market, and I think it is highly desirable that we have a flexible system so that when a new field or a new State brings in fields, it will work itself into the production picture by finding itself a market at the most readily available places, like Illinois has in Chicago, with a great market right there at hand, and I think that it is perfectly proper and fair to the people that Illinois should have that market near at home, just like Fort Worth and Dallas were markets for the nearby fields in Texas.

I will say this, we were not so fast about getting along with this thing ourselves. It has always been a slow process and it took years—took Texas years and years to develop it—and I feel sure that Illinois will find out the value of conservation and will in a short time pass a law, and they will probably not lose more than 1 or 2 or 3 percent of the recovery that they could have gotten, in finding it is desirable

to have good conservation laws. And they will learn that themselves. Besides, that is the only way that a law is good, and the people of the State come to learn that there is a value from the law; that there is some good in it. Otherwise you just have something imposed by force without understanding by the people. Our State has become thoroughly sold on conservation but it took a long time to do it. Even the smallest man used to kick a lot. He was prosperous. And there are 2,000 more of them than there were when you were here before. Their numbers have increased, but they are all getting along pretty well. They do not get much per year, or per day, but they get a little every day and it will last for a longer time.

So, I have no kick about Illinois, because in time they will have a law and will have made their place in the picture, and the rest of the States can come down in their production so as to make room for it, as witness the fact from my testimony, that the total indicated market demand is 3,600,000 and production 3,590,587 barrels. So, the whole Nation is producing just what it should. The other States will just have to come down a little bit, because naturally that oil formerly came from Texas or Kansas which is now being supplied by Illinois. It probably ought to be supplied by nearer sources. So, I have no complaint at all. It gives us that competition between States that is highly desirable; keeps the thing in good kelter, instead of having a perfect set-up of regimented States where everything has to be just according to the rules.

We want that free interplay of competitive force, enterprise, and competition.

Mr. KELLY. It has had its effect on the price of oil today, has it not?

Mr. THOMPSON. It has probably made it more reasonable. It has had a wholesome effect. The oil business is making money. One dollar and ten cents a barrel is the price in Texas, and I told you that they were buying every farm that was for sale, and every ranch that is for sale in the State. When you now see a new fence in Texas, you can bet that an oil man has bought that farm. He is the only man who can build a fence.

This map here, or this chart [Exhibiting chart] is a continuous one, gentlemen. That makes itself [indicating]. I mean that each month we extend here the month's performance.

This East Texas field is shown here. The pressure may be stepped back to 1933 when the production was 635,000 barrels per day. You will notice that the production was 635,000 barrels per day there and that the pressure was going down in a most definite manner. At that time the pressure in the field was 1,240 pounds per square inch. It dropped in 30 days to 1,201 pounds, a 39-pound drop in 30 days when produced at the rate of 635,000 barrels per day. There we saw the pressure going down very fast and it continued to come down, and if it had continued to come down at that rate it would be on the pump in a few months.

As a matter of fact, as you remember, they were saying that the East Texas field would be on the pump in a few months, when you were here before, and several companies equipped thousands of their wells with standardized pumping equipment, getting ready to pump the oil field when the time came, and the day was fast approaching. Those pumps have not turned a wheel. There are thousands of them, gentlemen, that were put in there since 1933 and 1934, but it

has never been necessary to use them because nature has been furnishing the power, which, in order words, we have conserved by doing what we have done. By reducing the daily allowable, we have cut the 635,000 barrels down to 569,000, and restored the bottom-hole pressure, and built it back up to 1,240 pounds. That is just what I was explaining a minute ago here. The proof of that is ascertained by testing these 92 wells. We use the same wells so as to get the same relative condition. The wells are scattered from one end of the field to the other on grid lines 4 miles apart, so that we get a general picture.

So, you see, as we continued to reduce the rate of flow down from 635,000 barrels a day to 405,000 there [indicating on map], we consequently built the pressure up, and not only that, but we have kept the pressure up. By slowing down withdrawals and letting the water catch up, we have built the pressure back up and if time had been given it would have built back to virgin pressure, because that is the way nature made the pressure in the beginning.

So this map shows clearly what happened day in and day out, month in and month out, year in and year out.

We have kept on building this chart up, according to the case. It is like a doctor looking at the chart of a patient in a hospital, to see how his fever goes up or down. This is our fever chart. If the pressure goes down that is a sign for use to reduce the rate of flow; cut down the production.

This here shows the shut-down, when we had the shut-down in August. We could not shut completely down, because with any well making water, of course, you had to keep on producing it so that the water would not take the well. You cannot have a perfect shut-down—complete shut-down—but we reduced production to 202,000 barrels in August and the pressure built up 47 pounds. You see what occurred [indicating on chart]? That just proves what I have been talking about all along. If you reduce the rate of flow you reduce the decline of pressure. It is built up.

The ideal would be to have a rate of flow—the ideal would be a rate of production for the total field that would keep the pressure constant, neither going up nor down, as is illustrated by the Conroe field.

This chart shows the Conroe field, a field in south Texas, and one of the best-operated fields, I suppose, you will find anywhere. This field was drilled in a regular pattern, one well to 20 acres. The rules for the field were written promptly upon discovery of the field and you see what happened to the pressure. We kept the rate of production constantly down. Now that field is producing 28,000 barrels per day and the pressure still stands 2,066 pounds. You will see that there is almost a steady line there, illustrating that, and that is almost an ideal picture. That is fine. There is not an engineer in the world who could depict a more perfect situation than is reflected by that.

MR. COLE. Where is August 1939 shown on that?

MR. THOMPSON. August 1939?

MR. COLE. Yes.

MR. THOMPSON. Well, we have not brought that up to that date, to the time of the shut-down. The pressure was increased appreciably, Mr. Chairman.

Here is the Van field. I am sorry that we did not bring that up to date, complete it to the time of the shut-down, but it reflects the same sort of situation as is shown in the Magnolia field in Arkansas.

The Van field shows a splendid picture. The present situation, the bottom-hole pressure is illustrated by the red line, being almost solid.

The Thompson field even shows a better picture than the Conroe. You see that is almost a straight line, 2,300 pounds pressure still there after 29,671,000 barrels of oil have been produced. Twenty-nine million barrels of oil have already been produced out of that field in 7 years and the pressure still stands at 2,325 pounds per square inch.

The Yates field out in west Texas clearly illustrates what I have been telling you.

Here is a field that the experts said was a gas-drive field; positively was not a water-drive. Well, we kept reducing the field, and we reduced it from 139,000 barrels a day. We had to cut it down, because wells were coming in in new fields and as each well came in we would have to reduce it. It was reduced until it got down to as low as 15,000 barrels a day. And, when we did that, you will notice that the pressure began to build up, and the chief engineer for that field, Mr. Gregory, a very efficient one too, came to our commission and said, "I must admit that the Yates field is a water-driven field, because the pressure would not build up unless you had something moving in to build up the pressure." The reason they had not known that before was that they never had slowed down enough to let the water move in and keep the pressure up.

Throughout the history of production we have been in such a hurry to get the oil out that we did not let nature do the job. Nature will help you greatly if you will just let her have a chance to perform. On the other hand, she takes a terrific toll when abused.

We have been producing oil fields so fast that the water did not have a chance to ever catch up. But here is an illustration of a field which they thought was gas driven and it turned out to be water driven, because the pressure built up.

Mr. MAPES. Mr. Chairman, may I interrupt there?

Mr. COLE. Mr. Mapes.

Mr. MAPES. Can the engineers tell with much accuracy whether the reservoir energy is supplied by gas or water?

Mr. THOMPSON. After study and calculation. It takes time and study. You measure that by the gas-oil relationship.

Mr. MAPES. It acts exactly the same as water?

Mr. THOMPSON. Yes, sir; but it takes a little time to determine it. I would say that it is about as accurate as a fever chart of a patient.

Mr. MAPES. Your staff does that the same as it does with the water pressure?

Mr. THOMPSON. Oh; yes, sir. We collect what the industry engineers' figures are, and verify their figures. We take our hearings under oath. I have copies of all of these charts for the committee.

Mr. MAPES. As I recall some of the testimony taken before the committee in the early part of November, some one said that 10,000 cubic feet of gas was used for lifting one barrel of crude oil in some field in Texas. What do you say about that?

Mr. THOMPSON. Well, we have some where it is 100,000 cubic feet to the barrel. It all depends upon the situation and the location of the well, and the structure. You might have two wells in the same field, one out on the edge, one well out there where the gas-oil ratio would be very different from what it is in the center of the field, and would take a great deal more gas. Naturally, the well out on the edge requires more gas to produce the oil. You have a varying ratio within the same field.

Mr. MAPES. Is that wasteful production or use of gas?

Mr. THOMPSON. No.

Mr. MAPES. Where it takes 100,000 cubic feet of gas to produce one barrel of oil?

Mr. THOMPSON. I could not tell you. It depends upon what they are doing with the gas. If they are reintroducing the gas back into the pressure, you are not wasting it at all, and that is a new and accepted way to do it, reintroduce the gas back into the structure after you produce the oil. Take in the East Texas field. When you were over there in 1934——

Mr. MAPES. That is done without waste?

Mr. THOMPSON. Yes, sir; it can be done to a higher degree of success and it is an approved way.

Mr. MAPES. Why are they not doing it up in the Illinois fields?

Mr. THOMPSON. They just have not got to it yet. It takes a little time. You cannot have perfection in this thing in a few months. I am telling you we are just finding these things out.

Mr. KELLY. They are doing it, Mr. Mapes, in the Loudon field.

Mr. MAPES. Yes.

Mr. KELLY. We saw some operations there where that was done.

Mr. MAPES. But not in the Salem field.

Mr. THOMPSON. We do not require it in Texas. I mean the law does not require it, but good operating practice requires it in Texas.

Mr. MAPES. Do you not think that the law in Texas ought to be amended to such an extent that they would include that?

Mr. THOMPSON. Require repressuring?

Mr. MAPES. Yes.

Mr. THOMPSON. It may be that the gas is needed for light and fuel. A great many people kick because of the fact that gas is being used by the carbon-black plants and they are making carbon black out of gas. Carbon black is needed for automobile tires to enable us to get 25,000 miles instead of 500.

So it is just a question of what somebody has in his own mind as to what is a utility.

Mr. MAPES. Some States prohibit the use of gas for making carbon black.

Mr. THOMPSON. That is correct, because their supply would be playing out. But, on the other hand, you have great areas where there would not be any market at all if they were not permitted to use gas for carbon black. Shall we say that we will close the gas wells down and not use that for any purpose? For instance we have sour gas, which cannot be used for anything except carbon. That gas has a high degree of sulphur, such a high degree that it cannot be used for light and fuel. So it is used for making carbon black.

By the way, the gas which was being wasted in the Panhandle when you gentlemen went up there 4 years ago has been reduced 93 percent.

So we are solving all of these problems as fast as human beings can work.

I have a copy of all of these maps and charts for the committee in miniature, which I will be glad to submit.

Mr. MAPES. Is there any field now that is using its gas exclusively for the gasoline that they can make out of it?

Mr. THOMPSON. There are many fields where they are taking the gas that is produced from the oil, extracting the gasoline and returning it.

Mr. MAPES. Fields such as those in the Panhandle of Texas?

Mr. THOMPSON. Some.

Mr. MAPES. Such as we saw 5 years ago?

Mr. THOMPSON. But you need that natural gasoline to tone up other gasolines. It is very desirable, a highly useful commodity.

Mr. MAPES. I do not know that I make myself clear or whether you understand me.

Mr. THOMPSON. Perhaps I do not understand.

Mr. MAPES. As I understand it, in 1934 the Panhandle people were producing gas and letting it all waste, except that part that they could convert into gasoline.

Mr. THOMPSON. That has been remedied to the extent of 93 percent.

Mr. MAPES. Now, I ask are there any fields where that is being done at present?

Mr. THOMPSON. No; there are not; not in Texas. As a matter of fact, our picture is getting increasingly better. We can always improve, and we are constantly doing it. We have no well in the State which is not under proration. Every field in the State is prorated. Everybody is selling their oil each day; selling less and less per well, because more and more wells are drilled; but, on the other hand, we do not need to regulate the drilling of wells, because they will finally get so many some day that they cannot make any profit out of it, and then they will quit and wait until the oil is needed and then drill some more. That is a good thing, because it is that profit motive thing that we live by in America anyhow, and if a man gets 10 wells and is getting 20 barrels a day, if he drills 20, he will get 10 barrels. It is fundamental. He is just putting more money into the ground and getting less and less. That is what they are doing, drilling more and more wells and getting less and less oil per well; but it makes business for the pipe people and labor, and drillers, and spreads money around.

Mr. WOLVERTON. Colonel Thompson, you are acquainted with the reasons which have been advanced by Secretary Ickes and others for the enactment of this legislation?

Mr. THOMPSON. No, sir; I have not had an opportunity of checking that up.

Mr. WOLVERTON. What help can you be to the committee, then, in ascertaining whether a need exists for this legislation and if need exists whether it should be Federal legislation or State legislation? That is the phase of this proposed legislation that I am interested in at this time. It is all very interesting, of course, to hear the efficiency with which the Railroad Commission of Texas has handled this situation. That is to be expected with a man like you at its head.

Mr. THOMPSON. Thank you.

Mr. WOLVERTON. And the associates of yours on the commission; but in view of this new legislation that has been suggested, and requested

by the President and by Secretary Ickes, I am anxious to know from men such as yourself who have had a large experience in this matter, as to whether the reasons that have been advanced for this legislation justify its enactment.

Mr. THOMPSON. Of course, I read carefully the trade journals and everything that comes out that affects the thing that I am daily working on, namely, regulation of oil and gas production, and I read everything I can get hold of about it.

Mr. WOLVERTON. I assume that Secretary Ickes and the President are familiar with the work that your commission has done from a conservation standpoint. You have been a frequent visitor at the White House, and if we are to judge by the public press, carried messages from the White House to different conferences.

It seems rather strange to me that in view of the studies that you have made of this subject, that you are not able to tell us whether the reasons that have been advanced for the legislation are justified. That is what I am anxious to hear from somebody.

Mr. THOMPSON. Well, of course, all I know is what I read in the newspapers and Secretary Ickes says that he wants to have control of the oil business.

Mr. WOLVERTON. Secretary Ickes has testified before this committee and others from the different departments in Washington, and that has all been made a matter of record. It has been presented. That testimony was taken in Washington preliminarily to the hearings of the different State regulatory bodies in order that they might know the viewpoint of the administration in this matter, so that they would come before the committee prepared to answer charges that have been made and in that way this committee would be able to hear views pro and con on the subject and it would permit a proper discussion of it. As I say, it is a bit disappointing to me that your testimony has not taken on more of that character in informing this committee wherein the Department is in error in asking for this legislation, if it is in error.

Mr. THOMPSON. I was in hopes we would be able to see the Government's case before we had to prepare our own.

Mr. WOLVERTON. I thought you had.

Mr. THOMPSON. I have not had that opportunity and we want to have a meeting of the Interstate Compact Commission to prepare our case and answer each and every allegation as we would in a petition and answer, and that is what we still hope we will have an opportunity of doing, and we intend to have a meeting of the Compact Commission and all of the States having an opportunity to study it so that every phase will be covered in reply, just like you have mentioned.

I think you are entirely right, but you cannot make a case on what you read in the papers. I cannot.

Mr. WOLVERTON. I assumed that the testimony having been taken and reduced to print, that you folks had had an opportunity to see it.

Mr. THOMPSON. I read in the papers where Secretary Ickes said that he was sorry to tell the committee that the States had not done as good a job as he had hoped would be done. I am trying to refute that. I think a workmanlike job has been done in Texas.

Mr. WOLVERTON. I agree with you that you had not expected to base your case entirely upon what Secretary Ickes says to the press.

MR. THOMPSON. Well, that is it. I have not had the record and I did hope to have a chance to read it, and I will do anything that is required to get a copy of it. Is a copy available; is a copy of the transcript thus far made available?

MR. WOLVERTON. I thought that it was.

MR. THOMPSON. I am sure that we have not seen it.

MR. COLE. I might say that there were a number of copies furnished by the reporter. Who got them I do not know.

MR. THOMPSON. I am sorry, Mr. Chairman, but I have not had it. How is it possible to get one so as to make this case? I would love to answer each and every allegation.

MR. MAPES. Mr. Chairman, may I call Colonel Thompson's attention to some of the testimony? From your opening statement I thought that you had not seen the testimony that was taken by the committee in November.

MR. THOMPSON. No, sir. I regret that I have not.

MR. MAPES. I regret that, too.

MR. THOMPSON. I am sorry, but we just did not have it.

MR. MAPES. But your State occupies such a prominent position in the production of oil and you individually have been studying this problem so much and so long, I thought that I would like to call your attention to some statements that were made before the committee, particularly as relates to Texas, and see what your answers to them would be. For example, one of the witnesses, Mr. McLaughlin, had this to say. It is along the line of the questions that I asked you about your engineering staff. This is a paragraph numbered 2. I am not sure where it will come in the printed hearings. I quote:

2. Inability to use best-known engineering methods.

As an example of inability to use scientific advice under proration schemes, take simply the matter of number of wells needed to recover efficiently the oil from the great East Texas Reservoir, a pool underlying nearly 135,000 acres.

As already stated, an expert consulting petroleum geologist familiar with the field has estimated that 3,000 wells, or 1 to 45 acres, would certainly have been sufficient, although comparisons with Persian experience suggests the possibility that under unitary direction no more than 300 wells, or 1 to 450 acres, might have recovered the 1933 peak volume of 206,000,000 barrels, if under controlled conditions it had seemed desirable to produce that amount.

Now, briefly, he had said that 3,000 wells would have produced the optimum amount in the East Texas field and that there were as a matter of fact 23,000 wells in the field and the estimates were that there would be about 7,000 more drilled. That is pretty nearly 10 times the necessary number. And he goes on to give the estimated waste of money in the putting down of that number of wells.

He says elsewhere in his statement:

Yet that great oil reservoir has already been punctured by 23,000 additional but unnecessary producing wells at an added cost in excess of \$300,000,000. Moreover, it has been estimated that a further 7,000 wells will be sunk in that field. Capital wasted in East Texas as a result of that kind of competitive development allowed, encouraged by regulatory efforts will approach, if not exceed, \$400,000,000. Moreover a large sum will be spent in operating these 30,000 or so unnecessary wells, so that waste materials and labor in the East Texas field eventually may well exceed \$1,000,000,000—to say nothing of the funds invested in extra storage and transportation facilities necessitated by flush production.

What is your comment on those statements?

MR. THOMPSON. Hindsight. His hindsight is better than his foresight. It is very easy after a field is developed fully for some fellow

to sit down and see how it could have been done better. If most of us were to live our lives over we would do a better job, if we could just start over knowing all that we do.

Actually when the East Texas field was brought in, Congressman Mapes, we thought that it was three fields and for years they were carried as the Joinerville area, the center, and northern fields. And, it took the drilling of thousands of wells to show the people in the industry itself that oil was in between those three different fields and throughout the 130,000 acres, and we are even yet adding areas by additional drillings and perhaps this man thinks that it is foolish for people to drill, but they go ahead and extend the field. They have extended it from 30,000 acres to 130,000, and they have done it by drilling wells, drilling one here and one there, and if people want to spend their money drilling wells on their land they still have a right to do it under the law of Texas, thank goodness, and they are not prohibited just because some fellow says they ought not to be drilled. We still let a man drill wherever he pleases if he follows the rules, and the rule when the field came in was 1 well to $2\frac{1}{2}$ acres. That was the State-wide law or rules. We did not know then as much as we know now. We thought then that the thing to do was if a man drilled a well, to immediately offset it on your property. Say if I drilled a well within 25 feet of my line then the law and the custom of the business required that you should drill one on your land directly opposite, equidistant from the line, as an offset from that and as a matter of fact if you had a lease on my property I would require you to drill a direct equidistant offset or you would lose your lease. So, these wells were drilled because other wells required it.

Mr. MAPES. As I understand it, the sponsors of this legislation want the Federal Government to have the right at least to prevent that, if the States pass such laws as that.

Mr. THOMPSON. Yes; I suppose they want us when a field is brought in, like they did in 1934 when Cayuga was discovered, to go out and fix an six wells as all that may be drilled that year in that field. Of course, it does not get anywhere, thank goodness, because the Supreme Court knocked that out and set-ups under it and all that had been attempted, because some field had been developed, like somebody though it ought to be developed, rather than to have the people develop and take care of these fields.

The best answer to that man's testimony there is the East Texas field and the record of the field itself which is going to produce $3\frac{1}{2}$ billion barrels more than the best minds in the industry thought that it would; $3\frac{1}{2}$ billion barrels dividend, and I think the additional wells helped in a large measure in getting that additional oil, because our engineers found out very definitely, Mr. Mapes, that 95 percent of the propulsion energy in the mouth of the well is expended in the first 15 feet and only 5 percent is exerted beyond 50 feet, so that it may very well be that it is good sound conservation to drill wells spaced close together. Drilling them widely apart is an economic measure; saves money. We are not concerned in the saving of money. We are concerned in our efforts in the conserving of oil, that the last barrel shall be produced and the least amount left in the ground never to be recovered. If you will—

Mr. MAPES. I think it is fair to say that the Secretary of the Interior in his statement before the committee said very definitely that

he favored State laws and thought every State ought to pass these laws, and that the purpose of the Cole bill which was introduced at the request of the President by the chairman of this committee, was not in any way to limit the authority of the States; but to make it possible for the Petroleum Commissioner created by the Cole bill to cooperate with the State authorities only in the preventing of wasteful production of oil.

And I think the Secretary emphasized in his testimony at different points that there was no thought of limiting production, but simply preventing the wasteful production.

Mr. THOMPSON. Well, if there should be a difference of opinion between the State authorities and the Federal, who would prevail?

Mr. MAPES. Well, the Federal authority would prevail.

Mr. THOMPSON. Well, that means that State sovereignty would go out of the window. We would get along fine as long as we did what Mr. Ickes said.

Mr. MAPES. Not necessarily. I think that there is a lot of cooperation—

Mr. THOMPSON. We have wonderful—

Mr. MAPES (continuing). Between State and Federal authorities.

Mr. THOMPSON. We have wonderful cooperation.

Mr. MAPES. Outside of the oil industry.

Mr. THOMPSON. Yes; and we have it in oil, too.

Mr. MAPES. I wondered if you or the other State commissioners and the industry itself have given any thought to the question of getting by with a piece of legislation that is as easy as this.

Mr. THOMPSON. Well, we think that the industry is getting along so well that it should not be hampered by any kind of legislation. When you are doing good, why take a lot of medicine?

Mr. MAPES. It perhaps is the theory of the sponsor—and I do not speak for them—they have not discussed it with me and all I know about their position is what I have read and heard from their testimony. It is perhaps their theory that it takes time for these State authorities to get educated. Up in Illinois, for example, there is admittedly waste now. And perhaps they think that it would be better if a more permanent institution could advise with the producers in the State of Illinois and the State authorities if need be.

Mr. THOMPSON. I think it is wonderful to get advice and counsel and suggestions, and recommendations; but when you must, there is something in me that boils up and rebels against a State being told it must do thus and so.

Mr. MAPES. I heard your statement before the monopoly committee a few weeks ago.

Mr. THOMPSON. Yes, sir.

Mr. MAPES. In substance, my recollection is that you said that you would rather have the Connally Act and have all Federal laws and regulations relating to the regulation of the oil industry repealed, rather than have any more enacted.

Mr. THOMPSON. That is correct. I have no fault to find with the Connally Act at all.

Mr. MAPES. That is a partial answer to the questions which your statement prompted me to ask you. Would you be willing, or would you think it desirable to have legislation which would authorize the

creation of a Petroleum Commissioner in the Department of the Interior such as this bill provides—

Mr. THOMPSON (interposing). To do what?

Mr. MAPES. To make these surveys such as it provides, make recommendations without giving the Commissioner the authority to enforce his regulations rather than this bill?

Mr. THOMPSON. Mr. Mapes, I believe if you change these wonderful agencies like the Bureau of Mines, and their fact-finding agency into a policy agency you will destroy the usefulness of that agency itself.

Mr. MAPES. You said, as I understood you, that it is fine to get advice, but when you got to the must end of it, you objected.

Mr. THOMPSON. That is right.

Mr. MAPES. And that is the reason for my question. Would you think it desirable to have the creation of this commissioner and give him a staff to make the necessary studies to determine whether there was waste in the production of oil and gas and to make recommendations without the power to put those recommendations into effect?

Mr. THOMPSON. It is unnecessary.

Mr. MAPES. You would not be willing to go that far?

Mr. THOMPSON. No; I do not want them to get their foot in the door, even. You create it and then some fellow will say, "I have got to have a little authority." And, when you give them a little bit of authority, they want to go further. It grows on you. That is the point that I make. We are grateful for the Connally Act. And it is delivering the goods.

I believe that concludes my statement, Mr. Chairman.

Mr. MAPES. I apologize for taking so much of the committee's time, but I want to ask one or two more questions. I am glad of an opportunity to get this information from an expert.

Mr. THOMPSON. I am not an expert at all.

Mr. MAPES. Oh, yes you are. You spoke about the viselike control of this bill, and I think the Secretary denies that the purpose of the legislation has anything of that kind in mind, and that the purpose is to authorize the Federal Government simply to cooperate with the States in the prevention of wasteful production and I ask again if you have, and the industry itself, has given thought to the question that this perhaps is an easy bill.

Mr. THOMPSON. By "easy" what do you mean? What do you mean by the word "easy"; a light bill; innocuous?

Mr. MAPES. Well, it is not extreme.

Mr. THOMPSON. Yes. I think it is an entering wedge, just to start the thing on, and once you start Federal control it keeps on going and going like the Interstate Commerce Commission. First it was just to do a little bit of regulation. Now, it is everywhere.

Mr. WOLVERTON. It is not as bad as the Margold bill.

Mr. THOMPSON. It is not as bad as that telephone-book-thick Margold bill, perhaps, but it is bad, and we just do not need it. It is like having an extra leg.

Mr. MAPES. My recollection of your testimony before the monopoly committee is that you said that the Texas law was temporary, re-enacted from time to time.

Mr. THOMPSON. Two years at a time.

Mr. MAPES. I have forgotten the reasons you gave for that.

MR. THOMPSON. So as to embrace in the law each 2 years, each time the legislature meets, new improvements which we learn about; the advances in technology and experience, so that we can improve the statutes, and it is easier to amend a law than it is to enact a new one. If it is expiring, something has got to be done about it.

MR. MAPES. Why does your law prevent the unitization of small fields?

MR. THOMPSON. Well, in Texas, we do not like to be made to team up with somebody else, because some people in our State have gone into partnership with others, particularly big outfits, and instead of getting a dividend they get a bill. After the well is drilled and the expense is over, instead of getting oil out of it or getting a dividend, you get a bill for your part. So even at times that occurs without this compulsion.

MR. MAPES. In these areas where the optimum amount of oil could be produced by 1 well on 40 acres, if it so happened that was in a community settlement and the 40 acres were owned by 40 different people, 1 acre apiece, is it true that each one could put down a well on his acre?

MR. THOMPSON. In Texas?

MR. MAPES. Yes.

MR. THOMPSON. If it is in a separate property; if it is his own property. We cannot deny him the right to drill a well. We tried to do that and lost in the courts.

MR. MAPES. Other States have that provision in their law.

MR. THOMPSON. Yes. Oklahoma has that in its law. We just do not have it in Texas.

MR. MAPES. I think Michigan has.

MR. THOMPSON. It is a question as to whether you want to go in partners with somebody or not, or whether everybody wants to have one well. I know that I would rather have one to myself than to have one with any partner, no matter who he is or how nice he is. People like to own their own stuff without having to team up with somebody else.

MR. MAPES. Of course, that overlooks entirely the conservation part of the question, does it not?

MR. THOMPSON. No; the spacing, Mr. Mapes, to be absolutely and completely frank about it, spacing has very little to do with conservation. It is a money-saving scheme to have wider spacing between wells; to not put so much money into the ground, but you will not get any more oil with wider spacing. You will get less oil, but you will not put as much money in the ground in so doing. Spacing is not a conservation measure. It is to conserve dollars. It does not produce more oil. The textbooks used to be more honest than now in that respect. Some of the text writers in order to sell their stuff are changing their theories and talking about wider spacing; but that is money saving. It does not follow that there would be as much oil produced as from close spacing.

MR. MAPES. Are these statements you are now making agreed to by the industry generally?

MR. THOMPSON. The industry generally, of course, wants to get as much oil as it can with the least expenditure.

MR. MAPES. Does the industry agree with what you are saying?

MR. THOMPSON. If you can get a fellow to divorce himself com-

pletely from the money making end of it and talk about the pure recovery of oil, he will tell you that.

Mr. MAPES. Can you find such a man in the industry?

Mr. THOMPSON. Yes; there are some honest-thinking people in the industry.

Mr. MAPES. But could he divorce himself from his personal feelings?

Mr. THOMPSON. Yes; every now and then you can get an engineer on the stand, and I can get him to finally agree that he is a pure scientist for the moment. I suppose that I have done it a hundred times on this very point. I get them to divorce themselves completely from their job for the moment and say, "You are a scientist now, not testifying for your general manager, and if you had all of the money that you needed to drill all of the wells that you needed to get all of the oil possible out of this particular field, how would you drill, Mr. Scientist?" And every time they say, "I would drill like so and so, so as to get the oil."

That is an honest, scientific point of view, but of course it is not a money-making plan. The wider you space, the less money you spend in getting each barrel. That is the difference between a pure scientist and a money maker. Of course, we have got to have some money or we could not drill the wells. But, the industry is doing all right as it is. The industry is prosperous; the people are getting along good, and why take some other kind of a nostrum?

Mr. MAPES. I would like to go on to another subject.

Mr. THOMPSON. Here is an estimate on the recovery as given by various authorities. Here are these new fields coming into production, like I told you of, each new field in the State. I hope that I am not taking too much of your time.

Mr. MAPES. I notice that a great many of the recent statutes contain a provision in the definition of waste to the effect that oil produced in excess of market demand is wasteful. Does the Texas statute have such a provision?

Mr. THOMPSON. Yes; we say in addition to other definitions of waste, that oil production in excess of market demand is waste.

Mr. MAPES. I have before me a copy of a recent act of the Michigan Legislature, and I think New Mexico and other State statutes have the same provision, and I would like to read that paragraph into the record and ask you some questions about it.

The words "market demand" as used herein shall be construed to mean the actual demand for oil from any particular pool or field for current requirements, for current consumption and use within or outside the State, together with demand for such amounts as are necessary for building up or maintaining a reasonable storage of oil or production thereof, or both such oil and production, and shall not be less than the actual percentage commitment for oil from such pool or fields.

Now, as an amateur, the question arises in my mind as to whether or not the Federal Government is not in a better position to determine the general market demand for the country as a whole than the State authorities can determine the market demand for the amount that is produced in particular States.

Mr. THOMPSON. The Bureau of Mines is doing that very efficiently at this time and we are following them almost religiously.

Mr. MAPES. You recently asked for a bigger allotment for your State.

Mr. THOMPSON. They do not make allotments. They simply indicate what they thing the demand will be. There is no such thing as an allotment.

Mr. MAPES. You recently asked them to permit you to produce more, did you not?

Mr. THOMPSON. No. I think what you are thinking of is that we sought to show that we had a bigger demand than they seemed to think; but instead of giving us a bigger estimate they cut it 6,000 barrels.

Mr. MAPES. That is a different way of putting it.

Mr. THOMPSON. They issue an estimate, like the Census Bureau. The Census Bureau tells you what the population of a city now is, and you can believe it or not. You can take the chamber of commerce figures if you prefer.

Mr. MAPES. As a matter of fact you follow that estimate now, do you not?

Mr. THOMPSON. We follow it pretty well.

Mr. MAPES. And there is no binding authority requiring you to do it?

Mr. THOMPSON. No. We are glad to have it, because we think the Bureau gives a dependable index, like a calendar, or like the Weather Bureau. You do not have to believe that it is going to rain just because the Weather Bureau says so.

Mr. MAPES. But, going back to my question, I asked you a short time ago what objection you would have if somebody could tell you how you could improve your production?

Mr. THOMPSON. I would be very glad to have his advice; but not someone with authority who would be wanting pretty soon to put his opinions into effect. But, there is something about a man when he is given a little authority. He wants more and more. It is peculiar to all of us; not only the Federal but the State, and I think that our State should not have so much authority. Our commission has got too much authority. I have testified to that before this committee previously.

Mr. WOLVERTON. We had that view expressed before us when we first held hearings by those who opposed the action of the Texas commission.

Mr. THOMPSON. We have got too much authority.

Mr. WOLVERTON. I just thought that had a relationship to the situation that you were complaining against. That is all. You do not want the Federal Government to have any say, but you want your State commission to have all possible say so far as it individually is concerned?

Mr. THOMPSON. I say that we have got too much authority in the State. Our commission has got too much power. It ought to have less power.

Mr. WOLVERTON. I imagine that could be very easily rectified if you requested that of the legislature.

Mr. THOMPSON. We are constantly telling them that we want our power defined and limited, because I think when administrative bodies and bureaus and commissions are created where the legislature delegates law-making power, judicial power, and executive power all in one, the standards should be laid down so definite that the administration has only certain things to do, because otherwise

they overstep and go too far, especially engineers. They are the worst tyrants on earth. An engineer wants everything to be just so. But, of course, after it is done he may find that it should not be done that way.

Mr. MAPES. The chairman of the committee, Mr. Cole, calls my attention to the fact that the Arkansas statute has no reference to market demand.

Mr. THOMPSON. Yes; that is correct.

Mr. MAPES. That is considered a very bad piece of legislation?

Mr. THOMPSON. Yes; it is good.

Mr. MAPES. I am interested in that question partly because of the Michigan situation. As I understand it—and I may not understand it correctly—the market demand for the oil of any particular locality is confined to certain limits, is it not?

Mr. THOMPSON. No; market demand is supposed to reflect the true condition of people wanting to get oil.

Mr. MAPES. Yes; but how?

Mr. THOMPSON. It is a factual thing.

Mr. MAPES. But how is the State of Michigan, for example, with only 2 percent or so of the total production of oil, going to determine the market demand of that 2 percent?

Mr. THOMPSON. Well, you will probably find that all of the oil produced in Michigan, and more, is used locally and that there is a very strong demand for even more than is produced.

Mr. MAPES. That is what I am saying. Is not the demand for any given pool limited to a certain area, somewhat like the limits of a pool underground?

Mr. THOMPSON. No; it may go to Europe; it may go into export.

Mr. MAPES. It may; but in regular channels of commerce, it does not as a rule, does it?

Mr. THOMPSON. I do not think you can very well tell.

Mr. MAPES. I am not sure that I understand that well enough to go into it in detail; but my impressions hold over from the hearings we had 5 years ago, and my impression is that that is true.

Mr. THOMPSON. Of course, economically it would be sound to use the local production for local consumption for the interest of the consumer.

Mr. MAPES. And I was interested in looking over a statement of one of the oil companies which was given us in Illinois about increased production of the oil fields and the amount of oil which they said was refined in the territory.

Mr. THOMPSON. Mr. Chairman, here are miniature duplicates of the charts of the various fields. May I submit them to you?

Mr. COLE. Yes.

Mr. MAPES. I do not find what I was looking for, but it went on to say, commented upon the production, increase in production in Illinois and it said that the oil was shipped into certain territory.

Mr. THOMPSON. In Mid-Continent group 3.

Mr. MAPES. To certain refineries, and that a year or two ago it was a certain percentage of the amount of oil produced in that area and now it is about twice that.

Now, if that situation is allowed to continue and it is aggravated, it is going to affect the competitive conditions in the surrounding States, is it not?

Mr. THOMPSON. You must have free interplay in the competitive areas?

Mr. MAPES. You know, that is sort of avoiding my question.

Mr. THOMPSON. I do not mean to avoid it.

Mr. MAPES. It is going to affect the competitive conditions in the States that have regulatory laws.

Mr. THOMPSON. They will have less market, because Illinois has taken it.

Mr. MAPES. Yes.

Mr. THOMPSON. But, that is wholesome. Otherwise we would have a situation where a man could never get any more business.

Mr. MAPES. Texas can speak that way, because Texas is a sort of a giant in the industry; but I do not know whether "a small boy" can talk that way or not.

Mr. THOMPSON. You mean a small-producing State?

Mr. MAPES. Yes.

Mr. THOMPSON. Well, a small-producing State would have its local markets; take all of its production.

Mr. MAPES. But, if it is being absorbed by Illinois, it does not do it much good.

Mr. THOMPSON. Well, I do not think we want any kind of a law that will say "this much and no more" shall you grow or produce. I think that would put a brake on development and would be contrary to our whole system of free enterprise.

Mr. COLE. Is the situation to which Mr. Mapes refers in Illinois and its effect now on other States comparable to East Texas in 1934?

Mr. THOMPSON. Very much the same.

Mr. COLE. Very much the same?

Mr. THOMPSON. East Texas crude came in. They did not have any market at all. Now, they have got 600,000 barrels a day. Much of it displaced other marketing of crude, you know.

Mr. COLE. So the situation in East Texas in 1934 was quite similar, in your judgment, to that in Illinois today?

Mr. THOMPSON. Well, in that you have got a new field. It was good oil.

Take the Panhandle of Texas, Mr. Chairman. The Panhandle of Texas was producing oil then and when East Texas came in, it produced a very fine grade of oil that makes good gasoline, and it took markets that other fields formerly had.

Mr. COLE. You have stated, I think, that if you had supervision over the Illinois field, they would not be producing today the quantity of oil they are.

Mr. THOMPSON. I hope that I did not say that. I did not have Illinois in mind at all. I do not want to attempt to run their fields, at all.

Mr. COLE. Will you say it?

Mr. THOMPSON. If I were running the Illinois fields?

Mr. COLE. Yes.

Mr. THOMPSON. I want Illinois to run their own business.

Mr. COLE. Of course you do, but knowing the condition in the Salem field, and some of the other fields in Illinois, and testifying as you have as to the way you want the Texas field run, is it fair to say that you would permit the same conditions to continue to exist in Illinois as exists there today?

Mr. THOMPSON. Well, I would say that the Legislature of Illinois can best direct its own conservation officials as to how to do it, and I have no comment or criticism of Illinois.

Mr. COLE. Then I do not understand why you say the situation today is comparable to that which existed in East Texas in 1934.

Mr. THOMPSON. I thought that we were discussing the displacement of markets.

Mr. COLE. I have reference to the "hot oil."

Mr. THOMPSON. I was talking about the displacement of markets. I thought that that was what you were talking about.

Mr. COLE. "Hot oil" is what we were discussing.

Mr. THOMPSON. As to "hot oil," just because it happens to have been produced in violation of the law or regulations, does not mean that there is anything deleterious in the oil.

Mr. COLE. Let us understand each other. If the conditions in Illinois today are comparable with what the conditions were in East Texas in 1934—I have reference, of course, to the "hot oil"—

Mr. THOMPSON. There is very little of it now.

Mr. COLE (continuing). Oil produced in excess of the demand suggested by Bureau of Mines.

Mr. THOMPSON. I understand that there is no "hot oil" in Illinois. When you have no law, it is just oil. It cannot be "hot," because my understanding of "hot oil" is oil produced in excess of the law. If you do not have any law you do not have any produced in excess. It is just like we used to do before we got conservation minded. I do not see how you can have any "hot oil."

Mr. COLE. Following the enactment of a State law; but it is perfectly obvious that they are producing in excess.

Mr. THOMPSON. In excess of what?

Mr. COLE. Of what I think will follow if they have State regulation such as there is in Texas, and I do not think that you will find any man who will disagree with that statement.

So that there is, I suspect, more oil coming out of the Illinois fields than there will be following the enactment of a proper State law.

Mr. THOMPSON. I would not know how the laws of the State would be passed. I do not know what provisions they might have in them; but I am sure they will find if they produce their oil more slowly, they will get a greater ultimate recovery; but I am not criticizing them.

Mr. COLE. Let us proceed then, Colonel, on the premise that Illinois is producing in excess of what the State would deliver into the market under a State law, and to assume this it is not reflecting on anyone. If Illinois can get along without a State statute, other States can also, and as Mr. Mapes suggests, excess oil going on the market affects other States and if it continues creates a situation such as we had in 1934 where other oil-producing States were demanding Federal legislation, very definitely so, because of what was going on in the State of Texas.

Are we to expect anything similar to that from other oil-producing States because of the conduct of Illinois?

Mr. THOMPSON. The answer is very definitely "no." There is no demand anywhere for Federal control that I can find, except from the Department of the Interior. The State of Texas or nobody else is

objecting to Illinois. Anybody is liable to bring in a new field. They must bring in new fields. It is the normal—actual, normal thing. I can see no confusion whatever.

Mr. COLE. Is it all right for California to continue without a law?

Mr. THOMPSON. Yes; they are getting along very well. I am not going to try to tell any State that they ought to have a law. I can recommend and tell them what it has done for us, and if they want to take some of it, that is all right.

Mr. COLE. Is that not one of the main jobs of the Interstate Compact Commission, to do the very thing that you say now should not be done?

Mr. THOMPSON. To cooperate with each other?

Mr. COLE. Does not the Interstate Compact Commission state in so many words what should be done——

Mr. THOMPSON (interposing). We are cooperating, and that is what we do.

Mr. COLE. And you do recommend?

Mr. THOMPSON. We do.

Mr. COLE. To which State have you ever recommended the enactment of any legislation? Since the interstate compact has been formed, name me one recommendation, if any, that you have ever made to an oil-producing State.

Mr. THOMPSON. We have quarterly meetings and there has never been a meeting but what we have examined the latest estimates in the production of oil and our proceedings have been published and sent to every State. We have not gone actively into any State and tried to pass any State law or anything of that sort.

Mr. COLE. What I am getting at is, as you know, with California as a party to the compact——

Mr. THOMPSON. No; California is not a party.

Mr. COLE. Well, was California a party to the original compact?

Mr. THOMPSON. I have attended every meeting of the Compact Commission, and California has never been a member. They have been an observer.

Mr. COLE. Maybe you are right. I was thinking of their participation in the meetings.

Mr. THOMPSON. We invited all States, Mr. Chairman, but California never belonged.

Mr. COLE. But the interstate compact itself provides, as I recall, that the Interstate Compact Commission shall have the right to recommend to the oil-producing States the enactment of waste-prevention legislation; does it not?

Mr. THOMPSON. Yes, sir.

Mr. COLE. And you have never made, as such, any concrete recommendations to oil-producing States since 1934?

Mr. THOMPSON. On the contrary we are making continual recommendations.

We are continually making recommendations. We have not said to any legislature, "Here is a law you want to pass." We do it by papers, Mr. Chairman; by suggestions.

Mr. COLE. Do you have any of those recommendations available?

Mr. THOMPSON. I can prepare them for you. I expected the compact to be heard at a later date. We have all of these recommendations for you.

Mr. COLE. Can you tell me from your own recollection now any recommendations that the Compact Commission has made to oil-producing states?

Mr. THOMPSON. Illinois.

Mr. COLE. Yes.

Mr. THOMPSON. And Arkansas.

Mr. COLE. Yes.

Mr. THOMPSON. Many times. The Illinois State geologist has been at about three of our meetings. We have kept an accurate account on their production practices and we have discussed it in open meetings, and made suggestions. The record is replete with suggestions.

Mr. COLE. What recommendations have you made to Illinois?

Mr. THOMPSON. We have not gotten up and named Illinois.

Mr. COLE. You know what I mean. I mean a dignified, authentic recommendation coming from the legally constituted Compact Commission. I do not mean a mere report of proceedings at some conference which has taken place.

Mr. THOMPSON. The meetings are dignified. A transcript is made of them and of the complete recommendations. I will submit a transcript of the Santa Fe meeting.

Mr. COLE. I have seen one of those.

Mr. THOMPSON. You will find Mr. Bell's testimony therein. He is their State geologist. He was at our last meeting.

Mr. COLE. This was the Santa Fe meeting?

Mr. THOMPSON. I will be glad to submit a transcript of that meeting and you will find discussion in there at great length about Illinois, as reported by the State geologist.

Mr. COLE. Can you find any recommendations of the Compact Commission, which were made a part of the minutes of the compact group such recommendations going to the State of Illinois or any other State?

Mr. THOMPSON. We have not taken and singled out States, but we make general recommendations on standards, for example.

Mr. COLE. What, for example?

Mr. THOMPSON. We have a very fine committee on standards.

Mr. COLE. What were your recommendations to Illinois?

Mr. THOMPSON. I am afraid you are asking about one thing and I am talking about another. I mean by this, we have got a committee on minimum standards made up of Mr. Gallagher, Mr. Pogue, and Mr. Alexander, and in the transcript you will find a very definite set of recommendations which that committee made. I think that that is as fine a committee as you will find anywhere.

Mr. COLE. At a later date when you say you will appear before the committee for the compact——

Mr. THOMPSON. As a representative of the compact.

Mr. COLE. I think you will be given an opportunity to provide that for us.

Mr. THOMPSON. I will get it up for each one, each time.

Mr. COLE. I would like to have it from the proceedings of the compact group and have it show——

Mr. THOMPSON (interposing). What we have done?

Mr. COLE. No; not what you have done; but any recommendations you have ever made to oil-producing States, looking to the prevention of waste.

Mr. THOMPSON. Yes; we will be very glad to bring that to the hearings.

I would like to give you that transcript.

Mr. COLE. Yes.

Mr. THOMPSON. Here it is.

Mr. COLE. Where does that appear in this? What is this?

Mr. THOMPSON. That is August 28.

Mr. COLE. State-wide hearings August 28?

Mr. THOMPSON. Yes.

Mr. COLE. Where is the order which was passed by the Commission? Will you point that out?

Mr. THOMPSON. The order is not in the transcript.

Mr. COLE. I would like to see a copy of the order, please.

Mr. THOMPSON. Yes. That detail is shown there. That is the detailed part up there [indicating].

Mr. COLE. This?

Mr. THOMPSON. Yes.

Mr. COLE. What is this?

Mr. THOMPSON. That shows the allocation to each field, and each well.

Mr. COLE. Suppose that I read a part of this into the record. I have asked you about this and I will ask you if you recognize that [showing witness paper] as a part of the order that you passed at the meeting of August 14, 1939, the meeting beginning August 15, 1939. Do you have a copy of the order, that is, the final order, as passed by the commission?

Mr. THOMPSON. I am afraid I do not have what you are asking for here. I have got it in my room. I can bring it down for you.

Mr. COLE. I will read just an extract of what I have before me, and it may be that you will recognize this, and if so, I would like to have you identify it as part, I believe, of the order passed at the meeting of August 14, 1939, beginning August 14 and ending August 15. If you have a copy of the order, the final order passed by the commission, I would like to have it.

Mr. THOMPSON. I am afraid I do not have what you are asking for here. I have got it in my room, and I will bring it down for you.

Mr. COLE. I will read just an extract from what I have before me, and it may be that you can recognize it. This reads:

All oil wells in all fields will be closed 15 days beginning August 15, 1939.

The reasons for the shut-down, as stated in the order, were:

The commission finds that in order to prevent waste and to enable the commission to study conditions of overground storage in the State of Texas and the waste of crude oil by evaporation, and to enable the commission to make bottom-hole pressure tests in the various fields in the State of Texas, and in order that the commission may investigate the physical conditions in the various fields in the State of Texas, including the existence of dead wells in said fields, and, also, in order that the commission may determine whether or not waste as defined by the statutes in the State of Texas, is imminent or is occurring in the various oil-producing fields and districts throughout the State of Texas; * * * the commission finds that waste is imminent due to the overproduction of crude petroleum and condensate in the various oil-producing fields and districts in the State of Texas.

I have just read from copy of the order found in my files.

Mr. THOMPSON. That wording; yes.

Mr. COLE. That is right.

Mr. THOMPSON. What is the question?

Mr. COLE. Was the action of your commission, the Railroad Commission of Texas, on August 14, 1939, passed because there was waste existing in the various fields of Texas?

Mr. THOMPSON. Well, you cannot produce a barrel of oil without some waste anywhere and that even applies to the accumulation of oil in storage. Oil was going into storage in various areas, supposedly, and what we did was we simply stopped production for 15 days to prevent waste in above-ground storage. It was effective. It reduced it by 30,000,000 barrels in 15 days. We were convinced that crude stored above ground resulted in waste and was wasteful through evaporation.

Mr. COLE. So that the reason for the order of August 14 was a waste prevention move on the part of the commission?

Mr. THOMPSON. That is true. As I told you, we have been closing in 2 days a week anyhow; 8 days a month; but even that, with winter approaching, the end of the consuming season being close at hand—Labor Day is the end of the consuming season. That is conceded. And, this was in August, and we had evidence that there was too much oil, because allegedly it was being offered variously through the Mid-Continent Oil field and was going begging. So that it was desirable to work off those excess stocks above ground, in storage, which was done.

Mr. COLE. So that your action in Texas, the action of the Railroad Commission of Texas on August 14 was really a waste-prevention measure?

Mr. THOMPSON. Well, I think the report shows that we built up the bottom-hole pressure.

Mr. COLE. I cannot disagree with you. I do not mean to do that. I want to know if that was really done to prevent waste.

Mr. THOMPSON. Well, we had been shutting in 2 days a week. I do not see how the 15 days would make any difference. This month we will be shut in 12 days.

Mr. COLE. Are you prepared to say whether the action of the other five oil-producing States, Oklahoma, Kansas, New Mexico, Arkansas, and Louisiana, which did the same as Texas on the following day was for the same reason?

Mr. THOMPSON. Well, I will say this: There was allegedly an over-supply of crude which was being offered by various people and offers were being made at less than the posted price. There were price cuts and the cut in price which came about at that time was evidence of this over ground storage, and you will find that the Humble stated in their announcement, and they even indicated where the oil was in this hearing. The Humble read that into the record. I asked that very question, if there was too much oil above ground, and they read into the record their statements and gave the fields where the oil was coming from as an indication of there being too much.

Mr. WOLVERTON. But that statement by the Humble Oil Co. was made subsequently to the order which you had issued shutting down?

Mr. THOMPSON. No; prior to their publication.

Mr. WOLVERTON. That said August 28th. That was the date of the hearing.

Mr. THOMPSON. No; he read from another paper.

Mr. WOLVERTON. This is headed, "State wide hearings held in Austin, Tex., August 28, 1939."

Mr. THOMPSON. That is correct.

Mr. WOLVERTON. The order to which Mr. Cole is referring, also which I am interested in, was issued on August 14.

Mr. THOMPSON. That is right.

Mr. WOLVERTON. So this has no relationship to that?

Mr. THOMPSON. Evidence of what I am talking about is in here, because that was determined long prior to our order of the 15th.

Mr. WOLVERTON. The only importance that I see that can be attached to it is that after having taken action, you tried to get a record which would support the action you previously took.

Mr. THOMPSON. No; we did not try to get a record at all. That was not the purpose. We did not ask for it for that purpose.

Mr. WOLVERTON. Why did you not have a hearing before you took action?

Mr. THOMPSON. On August 14?

Mr. WOLVERTON. Yes.

Mr. THOMPSON. We have one every month.

Mr. WOLVERTON. Then why did you not show that hearings were held prior to August 14, which gave you the facts under which you issued the order of August 14? You do not show that, but you show a record that was made 2 weeks after the order had been issued.

Mr. THOMPSON. You entirely misconstrue the purpose of my introduction of the record. It is not to justify it.

Mr. WOLVERTON. I do not want to misconstrue it, and I do not want to attach importance to it that it is not entitled to have.

Mr. THOMPSON. This advertisement was prior to our hearings on the 15th, and the price cut did come——

Mr. WOLVERTON (interposing). This states that it is a State-wide hearing, on August 28.

Mr. THOMPSON. I understand what you are talking about, but the advertisement you are talking about came out long prior to that time.

Mr. WOLVERTON. Yes, but your action was long prior to that hearing.

Mr. THOMPSON. That is correct.

Mr. WOLVERTON. You do not usually decide a case before you have taken testimony. In this case you gave a decision and then you held a hearing on August 28, and produced facts to justify it.

Mr. THOMPSON. No; that is not the condition.

Mr. WOLVERTON. I only know by the dates shown here.

Mr. THOMPSON. I can explain that to you. We keep the docket constantly open. We have hearings every month. We issue orders all through the month based on accumulated evidence.

Mr. WOLVERTON. I will not dispute the fact that you keep the dockets open, but here you apparently kept this case open to give support to the action that you took on August 14.

Mr. THOMPSON. No; I am talking about prior hearings, Mr. Wolverton, not this one at all.

Mr. WOLVERTON. I asked you today in the early portion of your testimony for that portion of the record which would justify the action that was taken on August 14, and you specifically referred to

the statement of evidence which our chairman now has before him and gave me approximately the page number.

Mr. THOMPSON. Yes.

Mr. WOLVERTON. I looked at that page, and that contains the statements that were made on August 28, and not on any date prior to August 14.

Mr. THOMPSON. But we had a hearing prior to this and I had a transcript of the previous month.

Mr. WOLVERTON. Then do you have some supplemental evidence that you wish to put in in addition to this which you gave me this morning when I asked you the question?

Mr. THOMPSON. I will be glad to add to it.

Mr. WOLVERTON. So, when I take the position I do, it is based upon the fact that the evidence as you have given it to me is dated August 28, and is 2 weeks after the order was issued.

Mr. THOMPSON. The only purpose in introducing this at all, Mr. Wolverson, was to take what were economically level stocks as evidenced by the testimony of those in the trade.

Mr. WOLVERTON. I was asking the question from that standpoint.

Mr. THOMPSON. I will be very glad to furnish you supplemental evidence.

Mr. WOLVERTON. I want to make further inquiry on that subject when an opportunity is presented, while you are before us. The chairman has not finished, and I do not want to continue at this time.

May I ask the witness when he appears at the afternoon session that he come prepared to offer to the committee the records of the State compact commission, as well as your own Texas commission, as to the resolution that was passed and any minutes relating to the resolution which shut off production entirely on August 14 after there had been a reduction in the price of crude by one of the major oil companies.

Mr. COLE. We will take a recess until 2 o'clock.

(Thereupon, at 12:47 p. m., a recess was taken until 2 p. m. of the same day.)

AFTER RECESS

(The committee reassembled, pursuant to the taking of recess, Hon. William P. Cole, Jr., presiding.)

Mr. COLE. The committee will please be in order. You may proceed, Mr. Thompson.

STATEMENT OF ERNEST O. THOMPSON—Resumed

Mr. COLE. Following the action by the Railroad Commission of the State of Texas on August 14, you addressed a telegram to the Governors of Illinois and Louisiana, which telegrams you referred to in your testimony before the T. N. E. C. in Washington recently.

Mr. THOMPSON. Yes, sir.

Mr. COLE. Do you recall that?

Mr. THOMPSON. Oh, yes.

Mr. COLE. And in that telegram, am I correct in stating that you said to the Governors of the two States mentioned that the special meeting which you had called was on account of the drastic cut in the price of oil, which seemed to be unwarranted? Is that correct?

Mr. THOMPSON. That is correct; yes, sir.

Mr. COLE. You do not have a copy of the telegram?

Mr. THOMPSON. No.

Mr. COLE. The interstate compact, article V, states—that is, the compact approved by Congress under which the Commission functions:

It is not the purpose of this compact to authorize the States joining herein to limit the production of oil or gas for the purpose of stabilizing or fixing the price thereof.

Do you find any conflict between that authority and the language used in your telegram?

Mr. THOMPSON. Not at all.

Mr. COLE. Why not?

Mr. THOMPSON. For the reason, if I may explain.

Mr. COLE. Yes, indeed.

Mr. THOMPSON. For the reason that we have a constant study, continually in effect, setting the amount of oil that is being produced; the amount that is being consumed each and every day, with reports coming from the Bureau of Mines and the A. P. I. and the Oil and Gas Journal, and the Oil Weekly, and various other mediums of the trade showing how much is being currently produced and how much is being currently used, and how much gasoline there is in storage, whether the storage is increasing or decreasing; whether the crude in storage is increasing or decreasing; and in our law in Texas we are admonished to consider market demands in the statute. Production in excess of the market demand is waste and we have to watch all of these continuing indexes from day to day and week to week as an index to what the situation of storage is, both as to gasoline and crude.

Now, the fact that there was a drastic cut in the price of crude which came to me was evidence that there was something wrong in our storage situation, Mr. Chairman. And not only that, but winter was approaching and we had been seeking since 2 years before to work off the unnecessary, unwieldy, and unwanted and unneeded surplus stocks of crude above the ground.

With proration under control, production under control, so that you can increase it or decrease it according to the needs, great stocks are perhaps not needed as they used to be needed when there was no dependable way of regulating production.

So when a drastic price cut came, it was the result of having too much crude on hand. We had many instances of wells losing connections. I mean by that that they could not find anyone who would buy their oil. Stocks were accumulating and had been accumulating for some months, and this drastic cut in the price was simply another evidence of a final warning of the oversupply of crude and gasoline on hand at that time.

Mr. COLE. It was not then for the purpose of building up reservoir pressure in the East Texas field or other fields in Texas?

Mr. THOMPSON. I would not say that it was for the purpose of building up reservoir pressure. We had that result and we saved thousands upon thousands of stripper wells throughout America from being prematurely abandoned, and our whole theory of conservation, so far as I know, and also its history, has been to protect the stripper wells from premature abandonment, and in order that the whole should be protected, it was necessary that consideration should be

given to that indication that was so commonly and so forcibly given to us. It is the best evidence I suppose you can get of true conditions, because as I see it, no one actually wants to cut the price. They want a price that justifies exploration, cost of production, plus a reasonable profit. I think everyone wants that, and when you have a price as low as 60 cents, there are perhaps 30,000 wells in our State of Texas that could not operate, continue operating at that sort of a price. They would have to be abandoned prematurely and that would be lost forever to America, because a small well once plugged and abandoned, is seldom gone back to and put back into production except at great cost. That is being done in Pennsylvania to some extent by drilling four wells around each well and reintroducing water and forcing water into one central well from four surrounding wells but it is an expensive operation costing around \$1.25 a barrel. What we were alarmed at was that winter was coming on with an oversupply of stocks as was evidenced by the cut in price.

Mr. COLE. I see. In your prepared statement you said:

If the Army and Navy need additional oil for defense, let the Congress make appropriations to buy such reserves and hold them against the need.

Do you concede the right of Congress to do that.

Mr. THOMPSON. You mean to provide for reserves for the Navy and the Army?

Mr. COLE. Of course, they can do that. Do you concede the right of the Federal Government to purchase oil fields, to acquire oil fields by purchase or condemnation?

Mr. THOMPSON. Well, I gave the example of the helium and the 50,000 acres that they bought in the Panhandle. I give that as the very best evidence that I have.

Mr. COLE. Yes; but most of that was condemned, was it not?

Mr. THOMPSON. I am not informed, Mr. Chairman. My impression is that they bought it in the open market.

Mr. COLE. They did?

Mr. THOMPSON. I do not think that they had any difficulty in buying it.

Mr. COLE. There was never any contest—

Mr. THOMPSON. I am not informed, though.

Mr. COLE. There was never any contest in connection with that matter?

Mr. THOMPSON. No; they were glad to sell it.

Mr. COLE. There was never any contest as to the right of the Federal Government to so purchase?

Mr. THOMPSON. I know of none, and I lived there in the town when the purchase was made. Everybody was happy to see the helium plant established there.

Mr. COLE. I agree with you that there should not be.

Mr. THOMPSON. My thought is that the Government has clearly a right to appropriate money for national defense; and if it includes buying a field of a convenient size and closing it in, and keeping it against a future need, I think it can do that.

Mr. COLE. Do you concede that it is a proper function of the Federal Government to appropriate money for the purchase of an oil field and in case of inability to acquire such properties by outright purchase, to condemn them, for national-defense purposes?

Mr. THOMPSON. I have not gone into it far enough; I have not gone into the question of condemnation. I do not have a brief on it. My thought is that the Government would certainly have the right to buy an oil field if they needed it, and you would probably have no trouble in getting it, because there is plenty of oil for sale. Other people buy wells continually. It is like buying shoes or uniforms.

Mr. COLE. I imagine that you would find it a little more difficult than that.

Mr. THOMPSON. I will be very happy to file a brief on that point if you will allow me to do so. Also I would like to have the privilege, Mr. Chairman and gentlemen of the committee, of filing an exhaustive brief on the constitutionality of the bill under consideration. It is almost finished, and it might be of interest to the committee to read it.

Mr. COLE. Prepared by whom?

Mr. THOMPSON. Well, I have three or four assistants who are working on it.

Mr. COLE. Who are they?

Mr. THOMPSON. Jack Blalock is one. Elwood Fouts is another. They are both present here. And I consider them able attorneys.

Mr. COLE. Representing whom?

Mr. THOMPSON. The State of Texas.

Mr. COLE. The State of Texas?

Mr. THOMPSON. Yes, sir; making the study at my request.

Mr. COLE. Maybe you can tell me this: Is it their position that for purposes of national defense Congress has the right to appropriate funds for the Federal Government to purchase or condemn oil fields?

Mr. THOMPSON. We have not gone far enough with that thought to give you a conclusion. I would like to file a brief if I might have that permission.

Mr. COLE. Well, I think we might like to have it.

Mr. THOMPSON. Well, if we have an opportunity at a later time, we will present the brief and argument. I am wondering also, Mr. Chairman, if it will be possible for us to get a copy of the transcript of the proceedings. We are willing to purchase it.

Mr. COLE. You mean today?

Mr. THOMPSON. As soon as available.

The CHAIRMAN. Why, certainly.

Mr. COLE. Of course. Secretary Ickes' statement was a prepared statement just like yours. It went out to the country, in the press. Everybody who wanted it had it. There was no attempt to keep his statement from anyone.

Mr. THOMPSON. I understand, but I want the testimony of all witnesses.

Mr. COLE. The statement of all of the witnesses.

Mr. THOMPSON. Yes, sir.

Mr. COLE. Oh, yes; the transcript is available to all of you.

Mr. THOMPSON. Can it be purchased, or will it be furnished on request?

Mr. COLE. Just like it was in 1934. We give away as many copies as are available.

Mr. THOMPSON. That was a fine contribution to the literature.

Mr. COLE. We have a limited number. The committee gives those out, and then they are available by purchase from the Government Printing Office.

Mr. THOMPSON. Can I purchase one from the reporter?

Mr. COLE. No; that will not be necessary. I will guarantee you one printed volume for nothing. I think anyone who has contributed as much to the proceedings as you have is entitled to that, and more, too.

Mr. THOMPSON. That is very kind of you.

Mr. COLE. What explanation have you to make as to why Texas continues to extend the State law which the Connally bill supports for a term of only 2 years?

Mr. THOMPSON. Because we want to currently bring the bill up to date and incorporate the advances of the engineering science as we find them out, and I am particularly anxious, too, that it be kept a temporary law so that we can limit the authority of the Commission as we find out new things which should be done, put them actually into the statute, instead of leaving them to the discretion of the Commission.

Mr. COLE. Do any other oil-producing States have temporary statutes? Most of them are permanent, are they not?

Mr. THOMPSON. Most of them are permanent, but it is such a fast-changing science that I think it is well to put the improvements in the statute as we find them. That has been our reason, wholly. There would be no trouble in making it permanent.

Mr. COLE. There would be no trouble in amending it if it were permanent?

Mr. THOMPSON. It is much easier to amend the law when it is expiring than if it is permanent law.

Mr. MAPES. I want to ask some questions that I should have asked this morning. The reporter tells me that he will put them in the hearings at their proper place in the morning proceedings.

Colonel Thompson, before Mr. Wolverton asks you some questions, I would like to refer to our discussion this morning about the effect of unlimited production in a field or in a State on production in an adjoining State. I dislike to go back to the matter, but the reporter tells me that he will insert this at its proper point in your testimony.

At the time you may recall I was looking for a statement relative to the production in Illinois, and asking you some questions about the effect of that increase in production, and what effect it would have upon the industry in Michigan.

We in Michigan are developing quite an oil business.

I have before me now the statement which I was trying to find this morning and it is contained in the No. 37 Monthly Report on Oil and Gas Drilling in Illinois by A. H. Bell and G. Y. Cohee. I think it is for November 1939.

On page 7 of the report we find the following:

ECONOMIC STATEMENT

Since crude oil produced in Illinois fields is marketed mainly in the refineries of the central refining district (i. e., refineries in Illinois, Indiana, Kentucky, Michigan, and Eastern Ohio), the ratio of monthly production in Illinois to total run-to-stills in this district is of interest.

I tried to state this thought in substance, but I am glad to have the exact language now.

For the first 11 months of 1939 the record is as follows (in thousands of barrels) :

Month	Central refining district runs-to-stills	Production in Illinois ¹	Illinois' percent of runs-to-stills	Month	Central refining district runs-to-stills	Production in Illinois ¹	Illinois' percent of runs-to-stills
January.....	14,370	4,446	30.9	July.....	15,990	8,737	54.6
February.....	13,544	4,542	33.5	August.....	16,030	9,852	61.5
March.....	14,919	5,380	36.0	September.....	16,431	10,443	63.5
April.....	14,818	5,415	35.5	October.....	² 16,650	² 10,234	² 61.5
May.....	15,908	6,849	43.0	November.....	² 16,500	² 9,888	² 60.0
June.....	15,675	7,083	45.2				

¹ U. S. Bureau of Mines.

² Estimated by Illinois State Geological Survey.

Stocks of crude petroleum on hand in Illinois, September 30, 1939, were 13,881,000 barrels as compared with 14,026,000 barrels, August 31, 1939, and 11,311,000 on September 30, 1938, the previous year.

Stocks of refined products in the central refining district compared with the previous year are as follows (in thousands of barrels) :

	Sept. 30, 1939	Aug. 31, 1939	Sept. 30, 1938
Gasoline.....	11,778	11,921	11,409
Gas oil and distillate fuel.....	3,917	3,867	4,052
Residual fuel oil.....	2,843	2,890	4,799

Now, for November, the total runs-to-stills in that area were 16,500,000 barrels. Of that there was produced in Illinois 9,888,000.

The percent of the total runs-to-stills in that district in November was 60 percent as against 30.9, 11 months before, or January 1939.

Now, if that situation continues is it not going to materially affect the industry in Michigan?

Mr. THOMPSON. I should not think so.

Mr. MAPES. What?

Mr. THOMPSON. I should not think so.

Mr. MAPES. I cannot follow your reasoning in making that answer.

Mr. THOMPSON. Well, because Michigan—

Mr. MAPES (continuing). Here is one State that increases, doubles its percentage of business in that area in 11 months and it must all be business taken away from someone else.

Mr. THOMPSON. It brought in a new field.

Mr. MAPES. Of course it did.

Mr. THOMPSON. Michigan is producing more than it did before, too.

Mr. MAPES. But it cannot be doing as much of this business, because Illinois is doing 60 percent of the entire business of the area in November when it only did 30 percent in January.

Mr. THOMPSON. I believe you will find, Congressman Mapes, that Michigan oil is moving freely also.

Mr. MAPES. I am just taking the report of the State authority of the State of Illinois.

Mr. THOMPSON. They are producing more oil; yes, in Illinois; but your market is so great in Michigan and Illinois that it takes all of the oil both States produce.

Mr. MAPES. But, it is confined to this area pretty largely.

Mr. THOMPSON. But your consumption is so great in Michigan with Detroit and all those big cities that every bit of your oil is being consumed, I have an idea, in the local market and I also have the idea that the local market now is consuming more than you are producing. All Michigan oil is going readily to market. It is displacing Kansas crude, I suspect, more than Michigan.

Mr. MAPES. If Illinois is continually displacing our oil, I imagine it has some effect upon the business in Michigan.

Mr. THOMPSON. I have an idea your conservation commissioner will tell you that his oil is moving freely and if it is moving freely—

Mr. MAPES. Maybe you have talked with him. I have not.

Mr. THOMPSON. I have not, but I have an idea that you will find it is moving freely. Your market is so great, you are in the very heart of the greatest consumption territory, except the New York area.

Mr. MAPES. But, personally, I cannot see how that affects the situation, no matter how great the consumption is; no matter how great the demand is; if Illinois increases its proportion or doubles its proportion of the demand and the supply, it seems to me it must affect the industry in other States.

Mr. THOMPSON. If you should find that Michigan also is increasing its part, too, would not that answer the question?

Mr. MAPES. No; I do not think it would.

Mr. THOMPSON. Well, I am sorry. I just cannot see any other way, as long as Michigan's oil is moving freely also.

Mr. MAPES. Well, I wanted to get those figures in the record so as to complete the inquiries I was making this morning.

Mr. THOMPSON. It would be necessary to see how Michigan is going. If Michigan is increasing also, it is a matter of congratulation to both States.

Mr. MAPES. But it has quite a model law, I am told.

Mr. THOMPSON. Yes; a good law and well administered. You have got admirable administration.

Mr. MAPES. It is in good hands.

Mr. THOMPSON. It is in good hands.

Mr. KELLY. If Michigan and Illinois are increasing production and the other States follow, what effect will that have, then, on the consumption demand?

Mr. THOMPSON. If Michigan and Illinois are both increasing and other States also increase?

Mr. KELLY. Yes.

Mr. THOMPSON. Well, we are showing an increasing consumption continually. We are using more gasoline all of the time.

Mr. KELLY. Are you sure of consumption?

Mr. THOMPSON. Consumption increased approximately 6 percent in 1939 over 1938 and 6 percent in 1938 over 1937, and I am estimating 8 percent in 1940 over 1939.

Mr. KELLY. Automobile sales appear to be good.

Mr. THOMPSON. Prospects are fine.

Mr. KELLY. That is true.

Mr. THOMPSON. So we have a general increase all over. It is a most wonderful industry; the situation the oil industry is in is the most

wonderful of any industry, because we have something here where there is no limit to our consumptive capacity.

Mr. KELLY. Two cars in every garage now.

Mr. THOMPSON. Almost unlimited demand.

Mr. KELLY. I hope that there will be three more.

Mr. THOMPSON. I hope that we can continue.

Mr. WOLVERTON. Some of them up our way stay in the garage.

Mr. COLE. Mr. Wolverton, do you have any questions?

Mr. WOLVERTON. What are your objections to the Cole bill?

Mr. THOMPSON. My objection to the Cole bill is that I believe the bill is unnecessary, and I do not see any need to legislate on something that is not needed.

Mr. WOLVERTON. What would the bill do that you consider as unnecessary?

Mr. THOMPSON. It would put a national administrator in charge of the oil industry and would take the control completely away from the States.

Mr. WOLVERTON. Is it your opinion that the Cole bill would eliminate State regulatory bodies?

Mr. THOMPSON. It would make it a duplication that would be so completely unnecessary, because when the State regulatory body conflicted with the will of the administrator, the will of the administrator would prevail.

Mr. WOLVERTON. Will you take the bill and read to me the language in the bill that, in your opinion, would have that effect?

Mr. THOMPSON. Findings; whenever the administrator will find that waste is occurring he can stop that waste.

Mr. WOLVERTON. Is there any Federal or State body that could stop waste if it is occurring today?

Mr. THOMPSON. We have attempted to do it as best we can in our State of Texas.

Mr. WOLVERTON. What do you consider waste?

Mr. THOMPSON. Well, in our State it is defined very definitely of producing oil with excess of gas-oil ratios or killing a producing strata with water; or prematurely abandoning production; or producing at excessive rates that would use the energy in a manner that would cause it to drive to the top of the earth a smaller amount than could be produced by a more judicious use of the motivating energy.

Mr. WOLVERTON. If that is a correct definition of waste, then what does demand, supply and demand, have to do with that?

Mr. THOMPSON. In our State we have a statute that says production in excess of market demand is waste and that is based upon evaporation of crude in storage above ground.

Mr. WOLVERTON. Let us analyze that for a moment. You gave that answer to Mr. Cole at the beginning of this session. Will you just elaborate a bit on that and explain to me how production in excess of the estimated demand constitutes waste?

Mr. THOMPSON. In the first place, if you produce an excess of the transportation facilities, you would have oil stacking up in storage even in open earthen storage as they had in Oklahoma, where the statute in Oklahoma was upheld because of the occurrence of waste in open storage, even in the most efficient storage if you will look at the openings of the tank, you can see vapors going up in the air, and

those are the lighter ends of the crude, which are the most valuable of all the crude.

Mr. WOLVERTON. Prior to the enactment of your conservation act, how much crude oil did you find was being wasted by exaporation through excessive storage as you have now stated?

Mr. THOMPSON. I do not know what the percentage was. I have heard it testified to as high as 5 percent over the period of time. The Bureau of Mines made a very exhaustive study of it, however, Mr. Wolverton, and it should be noted here at the request of the oil States and by reason of an appropriation which the Congress made of \$56,000 to check up on crude in storage, and I must state to you that they found some crudes had been in storage a long while and still had as much gasoline content as some freshly produced crude or crude which had only been in storage for a few months.

Mr. WOLVERTON. It is difficult for me to visualize any company or any owner of an oil well producing oil merely for the purpose of having it evaporate. I would assume that they would produce it for the purpose of sale.

Now is it your opinion that oil produced in excess of what the Bureau of Mines estimates may be the demand would be wasted and never used.

Mr. THOMPSON. Not at all. There would be waste incident to its holding and being held in storage. It is incidental waste, small evaporation. It is not much.

Mr. WOLVERTON. The limitation of production fixes the price, does it not?

Mr. THOMPSON. It is bound to, indirectly.

Mr. WOLVERTON. The more you limit production, the higher the price?

Mr. THOMPSON. Well, I do not think that follows. Our history has been rather interesting on that in Texas. Under proration the price has continually dropped instead of increasing and on the long pull, has come down steadily.

Mr. WOLVERTON. That might not be attributable to the amount produced. The price may have dropped because of the cheaper way of making gasoline.

Mr. THOMPSON. But you see it is coincidental. They happened to occur at the same time.

Mr. WOLVERTON. Let us get to the basic principle that is involved. Limitation of production fixes price, does it not?

Mr. THOMPSON. I suppose the answer probably would be yes; but, however, I should add that building up great reserves underground affects the price as much as storage above ground, or production.

Mr. WOLVERTON. Availability of a commodity to the consumers certainly determines its price.

Mr. THOMPSON. That is correct.

Mr. WOLVERTON. And the more available the article is the cheaper the price.

Mr. THOMPSON. Yes; you can have it so available and so much of it that nobody would even give storage space for it.

Mr. WOLVERTON. Then when you limit production you are affecting price?

Mr. THOMPSON. Oh, I think it is inescapable that there is incidental effect on price by limiting production.

Mr. WOLVERTON. And if you limit it unduly you unduly increase the price to the consumer.

Mr. THOMPSON. If you limit it unduly, you unduly increase the price?

Mr. WOLVERTON. To the consumer.

Mr. THOMPSON. So long as you are producing all the market consumes, I do not believe it will have any effect on it, because no one wants more than they currently need.

Mr. WOLVERTON. The market will consume more of a cheaper article than it will of an expensive article, will it not?

Mr. THOMPSON. That seems to stand to reason, but the price—

Mr. WOLVERTON (interposing). I only know from personal experience. When I buy gasoline up our way, when a price war is on, for 10 cents, I am not nearly as careful as to the mileage of my car as I am when it is 17 or 18 cents.

Mr. THOMPSON. It is an interesting thing to note, Mr. Wolverton, that the price of gasoline and the price of crude does not seem to have any relation.

Mr. WOLVERTON. Well, from the standpoint of the consumer, there is some relationship, it would seem, because the price to the consumer of gasoline must necessarily depend upon the price of crude.

Mr. THOMPSON. You would think it should.

Mr. WOLVERTON. If there is cheap crude, as the result of large production, certainly it would be reflected in cheap gasoline.

Mr. THOMPSON. Well, when crude was 10 cents a barrel, gasoline was about the same price as it was when the price was a dollar for crude in Texas.

Mr. WOLVERTON. That was an abnormal situation then. There were a lot of elements that entered into that that do not apply to the situation now, nor to the phase of it that I am directing your attention to. I am emphasizing the fact that it is basically true—and I never heard anyone before this committee deny that fact—that limitation of production does affect the price to the consumer.

Mr. THOMPSON. As a general principle, yes; that would be right.

Mr. WOLVERTON. Then if you unduly restrict production or improperly estimate the demand, to that extent you have increased the price to the consumer of what is made available to him.

Mr. THOMPSON. Unless you had on hand in storage sufficient oil so that the limitation did not affect the price.

Mr. WOLVERTON. But when you fix production on the basis of demand, as I have understood it, you take into consideration the amount that is in storage.

Mr. THOMPSON. No; that is absolutely wrong. The Bureau of Mines does not consider the amount of oil in storage at all, and they used to indicate years ago when they first began putting out these estimates, some estimate as to the removal from or into storage, supplementing production, but they quit that about 4 years ago.

Mr. WOLVERTON. In your statement this morning you emphasized the fact that the amount in storage when the conservation act went into effect was 260,000,000 barrels. That is what you said?

Mr. THOMPSON. I said that we had reduced storage by about 200,000,000 barrels in the last 4 years in the Nation, and that there were some authorities who thought that 230,000,000 was the proper amount to have in storage, and some thought 260,000,000.

Mr. WOLVERTON. And you pointed with pride to the fact that there was 230,000,000.

Mr. THOMPSON. Some thought that there should be 200,000,000, and some thought that there should be 260,000,000; the average was about 230,000,000, and we have just about hit that figure.

Mr. WOLVERTON. In arriving at that amount of storage, you did compromise between the two viewpoints, as to the 230,000,000 and 260,000,000?

Mr. THOMPSON. No; we got the testimony of what the people thought was the proper level and found we were out by about that amount.

Mr. WOLVERTON. Well then you did take into consideration the amount that was in storage when you fixed the amount to be produced?

Mr. THOMPSON. Each State regulatory authority does that, but not the Bureau of Mines.

Mr. WOLVERTON. Then it is taken into consideration?

Mr. THOMPSON. Availability; yes.

Mr. WOLVERTON. So that the amount then that is produced, plus the amount in storage, is supposed to meet the demand.

Mr. THOMPSON. Correct; that is right.

Mr. WOLVERTON. Now, if you limit the amount in storage or if you limit the amount of production to the point, we will say, to make a strong case, where there would be a scarcity, you certainly would raise the price to the consumer, would you not?

Mr. THOMPSON. I am just wondering if you could ever accomplish that result. I doubt it seriously.

Mr. WOLVERTON. I use that—

Mr. THOMPSON (interposing). Theoretically you are correct.

Mr. WOLVERTON. I use that in order to make my illustration clear and certain.

Mr. THOMPSON. Theoretically it would be; what you say would be true; actually it could not happen.

Mr. WOLVERTON. It could happen somewhere between actual scarcity and a limitation to less than demand, could it not?

Mr. THOMPSON. That is correct.

Mr. WOLVERTON. And the extent to which you would limit it less than the demand, would certainly raise the price to the consumer of the part that was available.

Mr. THOMPSON. Carrying out your theoretical question; yes; that is right.

Mr. WOLVERTON. Now, when your commissions, the Texas Commission and other commissions that come under your leadership, in answer to one of the major oil companies reducing the price immediately shut off production, could it have any other effect than to raise the price?

Mr. THOMPSON. It would or could perhaps remove the cause of it by removing the surplus crude in storage.

Mr. WOLVERTON. The extent then to which your order reduced production had a tendency to offset the cheap price that that major company was offering its oil for?

Mr. THOMPSON. No; they were buying oil at the price they were willing to pay for oil. They cut the price they were willing to pay.

Mr. WOLVERTON. Well, I did not take it that way, from the reports that I read.

Mr. THOMPSON. Is it not what they wanted to pay?

Mr. WOLVERTON. I cannot see where that——

Mr. THOMPSON (interposing). Their crude purchases, Mr. Wolverton——

Mr. WOLVERTON. Maybe I do not understand the situation as fully as I should. I want you to explain it to me. But, if I offer you 10 cents for a barrel of oil that is worth a dollar, you do not sell.

Mr. THOMPSON. You cannot make anybody sell, theoretically, but actually.

Mr. WOLVERTON. Then what was the effect when that company, from the standpoint of the consumer, reduced its price; that is, the offering price?

Mr. THOMPSON. I will have to explain that to you. You say that a man does not have to sell. That is theoretically true; but actually, he has to sell to keep going to pay his expenses and pay rolls.

Mr. WOLVERTON. I regret exceedingly I do not have before me a news report of the Associated Press that quoted you in quotes in which you directly said when that price was reduced by that company, as I understood, as their purchase price, that you said you would act and your Commission would act and you would soon take care of that situation, which you did by issuing an order to shut off production. You got all of the other States to do the same thing; and the Interstate Compact Commission met and it did likewise.

Now what I want to know is where the consumer gets off under actions such as that? We passed this act, the Connally Act, in the interest of conservation.

Mr. THOMPSON. Yes.

Mr. WOLVERTON. That is idealistic; but it struck me that in August last all idealism was stripped from the Conservation Act and it became just what some had charged it to be from the beginning, a stabilization act that stabilized the price for the oil industry.

Mr. THOMPSON. I believe everyone agrees, Mr. Wolverton, that in order to have a reasonably cheap product, oil, you must have a price that will pay for the cost of operation; and when you reduce it below the cost of operation, you will cause 200,000 wells to be plugged, abandoned; and that is not true conservation.

Mr. WOLVERTON. I do not think that there is any more outstanding exponent of conservation in this country than Secretary Ickes. Whether we agree with him in every particular or not is beside the question; but from the standpoint of conservation, I do not think there is any doubt but what Secretary Ickes is heart and soul in favor of real conservation.

Mr. THOMPSON. I agree with you thoroughly.

Mr. WOLVERTON. And yet Secretary Ickes before this committee when it held its hearings in Washington a few weeks ago, in answer to my questions which I have here before me, said that that action by the several State regulatory bodies and by the Interstate Compact body had every appearance to him of using a conservation act as a stabilization, price measure, and when I pointed out to him that this committee had written into the Connally Act a proviso that if at any time it was used contrary to the best interests of the consumer that then the provisions of the Connally Act could be made noneffect-

tive by proclamation of the President, he said, "Yes; and we were on the verge of asking the President to do that very thing."

Now, that, to my way of thinking, justifies the criticism that he made that when you use it as a price measure you are destroying it as a conservation measure and the confidence that people are expected to have in it as a conservation measure.

Mr. THOMPSON. I would like to say, if I may, that the whole heart of conservation has been the preservation of the stripper wells, and if you reduce the price so low that the stripper wells cannot operate, you will cause the greatest loss to conservation ever known.

Mr. WOLVERTON. That thought was presented to this committee by the stripper-well people in the original hearings; but I have never heard their interests advocated to the extent that you are now advocating them by any one other than the stripper-well people, and it seems to me—I am speaking frankly just what is in my mind, because I want you to give me your reaction to it—you are using the stripper wells now to justify what you did to maintain price.

Now, you may feel justified in having maintained price. I am not going to argue that with you. All I want you to do is to either admit that it did have that effect and that was the purpose, which I suppose you will not admit—

Mr. THOMPSON (interposing). You mean removing the extra surplus stocks?

Mr. WOLVERTON. I mean shutting down production in the arbitrary manner in which it was shut down by these oil-producing States without regard to the interests of the consumers.

Mr. THOMPSON. The consumers had over 250,000,000 barrels of crude on hand above ground ready to be used and the purchasers of crude were saying that there was too much oil, therefore they reduced the price in order to reduce the amount of oil.

Mr. WOLVERTON. And you took them at their word and said if there is too much oil we will stop production.

Mr. THOMPSON. And work off excess storage.

Mr. WOLVERTON. And without regard to how much there might be in excess, you shut off all production?

Mr. THOMPSON. No; we only shut off wells that were flush, Mr. Wolverton. We did not close down any wells that would be hurt.

Mr. WOLVERTON. You shut off enough so that it would have the effect of changing that policy of reducing the price by a major oil company.

Mr. THOMPSON. For 2 years we have been doing the same thing 2 days every week, and this month we are shut in 12 days, Mr. Wolverton, because we would produce too much oil if we did not shut in.

Mr. WOLVERTON. Can you point out to me any illustration within the last 2 years where a major oil company announced a reduction in price and you immediately shut down all production and called in the other States to do the same thing and had the Interstate Compact Commission confirm it?

Mr. THOMPSON. You are assuming that the Compact Commission did something we did not do at all. Texas acted on its own. Governor Payne H. Ratner, of Kansas, and Governor Phillips, of Oklahoma, telephoned me and wanted a conference and in response to their request we called a conference, but the compact as such took no action at all. Each State acted on its own. We realize fully what

you are saying, but at the same time we had facing us the very life-blood of our States, 200,000 wells that would have to be ruined by premature abandonment, and I assure you it was to protect the stripper wells and nothing else.

Mr. WOLVERTON. I cannot imagine that any such a situation as you are now mentioning could have happened so quickly as to require you, as an officer of the State of Texas, and those who are associated with you, and other States, to act immediately to shut down all production.

Mr. THOMPSON. We were going into winter. You would have a situation that would last months and months, and brought bankruptcy and failure all over our State.

Mr. WOLVERTON. You did not even take a week to inquire into the facts to determine whether there was too much in storage and that that brought about a reduction in price.

Mr. THOMPSON. We are currently making those studies, constantly.

Mr. WOLVERTON. Then you are doing it continually?

Mr. THOMPSON. Yes; continually, day by day.

Mr. WOLVERTON. Then you knew that that condition existed before that company took that action?

Mr. THOMPSON. We had been worried for months and months and months with too much crude and had attempted to cut it down. I am afraid I am not making myself clear to you.

Mr. WOLVERTON. Did I understand you to say that you were currently keeping in touch with the situation?

Mr. THOMPSON. By reading the Bureau of Mines reports.

Mr. WOLVERTON. Then why did you not act before the company reduced the price?

Mr. THOMPSON. We had been acting; that is why we had shut down 2 days a week, and that was not sufficient.

Mr. WOLVERTON. Is it not true that you did not advocate and make effective a complete shut-down until that company had reduced its price?

Mr. THOMPSON. I have told you that, but——

Mr. WOLVERTON. I can see——

Mr. THOMPSON (interposing). I am telling you about shutting down 2 days a week for 2 years.

Mr. WOLVERTON. I understand that.

Mr. THOMPSON. What is wrong with that?

Mr. WOLVERTON. I am talking about this complete shut-down.

Mr. THOMPSON. We had not been able to get the surplus stocks worked off; and here was the evidence, a cut in price was the best evidence that there was too much in storage.

Mr. WOLVERTON. Then you knew before that company took that action that there was too much oil in storage?

Mr. THOMPSON. That was the basis of our trouble for a year.

Mr. WOLVERTON. I say you know that?

Mr. THOMPSON. We were trying to reduce——

Mr. WOLVERTON. I say you knew that at that time?

Mr. THOMPSON. Everyone knew it, and for years we have been trying to remedy it.

Mr. WOLVERTON. Why did you not act before that company reduced the price?

Mr. THOMPSON. We had been acting continually.

Mr. WOLVERTON. But you had not shut down completely.

Mr. THOMPSON. For 2 days a week.

Mr. WOLVERTON. You had not shut down completely?

Mr. THOMPSON. Yes; 2 days a week entirely.

Mr. WOLVERTON. But you shut off all production?

Mr. THOMPSON. We had been shutting off 2 days a week for 2 years, and this month we are shut in 12 days.

Mr. WOLVERTON. Yet, when they reduced the price, you shut off all production for 15 days, not just 2 days.

Mr. THOMPSON. We did for 15 days.

Mr. WOLVERTON. You did it long enough to make effective what you were seeking to do, and that was to change the policy of the company from reducing the price of oil?

Mr. THOMPSON. I believe I can explain to you in a one-word sentence. We called a shut-down and then immediately, coincidentally, called a hearing to inquire of the industry as to the state of stocks.

Mr. WOLVERTON. In other words, you shut down and then called a hearing?

Mr. THOMPSON. Locked the door before the horse was gone; yes, sir; instead of waiting until he was gone.

Mr. WOLVERTON. Well, I see it in an entirely different way, and I am sorry that your explanation has not explained it to me. I do hate to have somebody pour water on me and tell me that it is raining.

Mr. THOMPSON. I am not attempting to do that at all, and it is very real as far as these stripper wells are concerned. I think that you will hear the other States say the same thing. I am sure you will. I have not collaborated with any of them, but the stripper well case is serious.

Mr. WOLVERTON. Well, I anticipate that you will come before us as a spokesman of the interstate compact. I hope that you do.

Mr. THOMPSON. I hope to.

Mr. WOLVERTON. When the interstate compact commission is heard.

Mr. THOMPSON. Yes, sir; and I will bring all of the records that I have on that.

Mr. WOLVERTON. At which time it may be that we can have some of the reports containing the text of what you are quoted as having said.

Mr. THOMPSON. I shall be very happy to have them.

Mr. WOLVERTON. I anticipate that you will be a witness.

Mr. THOMPSON. I shall be happy to be.

Mr. WOLVERTON. Now, you say that you have asked for the preparation of a brief on the constitutionality of this bill.

Mr. THOMPSON. Yes.

Mr. WOLVERTON. To be submitted to the committee.

Mr. THOMPSON. Yes.

Mr. WOLVERTON. What are the features of the Cole bill that you think are questionable from a constitutional standpoint?

Mr. THOMPSON. Whether or not the Federal Government has the authority to exercise police power within a sovereign State; whether or not that power has been handed over.

Mr. WOLVERTON. Well, now, what provision of this bill interferes with that sovereign power of the State?

Mr. THOMPSON. Where the Federal administrator would find waste, and then if the State authorities did not correct it, he would cause it to be done, supplanting State authority.

Mr. WOLVERTON. Is it on the assumption that waste would be discovered by the Federal authorities that the State regulatory body had not discovered? Would you object to having that brought to your attention?

Mr. THOMPSON. Not at all; but it is compulsion that I think it is turning over to the Federal Government, a duplication of what the States could do. Why have two people doing it?

Mr. WOLVERTON. Now, if this great national resource that is depletable and irreplaceable is of such importance for these several States to have regulatory commissions and come to Congress and get its assistance to make them effective by legislation such as the Connally Act, it would indicate to me that the States were interested in the elimination of waste.

Mr. THOMPSON. They are.

Mr. WOLVERTON. What objection could there be if that waste existed, for the Federal Government, if Illinois refused, or any other State refused, to recognize that wasteful practice, to come in under those circumstances and say, in the interest of the entire people of the United States, consumers as well as producers, you are directed to correct that wasteful method. What is the fundamental objection to that?

Mr. THOMPSON. Not necessary.

Mr. WOLVERTON. Not necessary?

Mr. THOMPSON. No. I think we are doing a crackerjack job, if I may say so, may be pardoned for saying so, in Texas.

Mr. WOLVERTON. If you are doing everything that is necessary, then there would never be any reason for the Federal Government to say that to the States.

Mr. COLE. Why have him then?

Mr. WOLVERTON. Why, there may be some States that might not be as efficient as your State.

Mr. THOMPSON. I prefer to think that the States, other States, would be as efficient as us.

Mr. WOLVERTON. But we are looking at it from the standpoint not merely of Texas. We are looking at it from the standpoint of all of the oil-producing States as well as from the standpoint of the consumers.

Mr. THOMPSON. Well, if you can do this with oil, you can do it for coal, for sheep and goats, and wool; mohair; watch out for the cattle and horses; and just let the Government run everything; have a totalitarian government.

Mr. WOLVERTON. Of course, you are assuming that they are irreplaceable natural resources.

Mr. THOMPSON. Well, they have got to be fostered.

Mr. WOLVERTON. What is it?

Mr. THOMPSON. They must be bossed and looked after.

Mr. WOLVERTON. True.

Mr. THOMPSON. As a matter of national defense we will need wool.

Mr. WOLVERTON. I do not think in your more serious moments you would offer that as an illustration comparable to the oil that is in the ground.

Mr. THOMPSON. Well, the United States Supreme Court, one of the justices, in one of his opinions, said that if you could regulate production in this matter, you could apply to the wool grown on the back of the sheep.

Mr. WOLVERTON. I am familiar with that, and I do not want my questions to assume that I have a particular viewpoint along that line; but I am trying to obtain from you an expression as to what is the fundamental objection to this bill.

Mr. THOMPSON. The fundamental objection—

Mr. WOLVERTON (continuing). When the Federal Government, which you are using to assist you in conserving a natural resource, wishes to step in and where necessary give additional help.

Mr. THOMPSON. Well, I do not want to have them take over that.

Mr. WOLVERTON. What is that?

Mr. THOMPSON. If I thought that they were going to stop at that, that would be different, like the Bureau of Mines; that is fine.

Mr. WOLVERTON. Now, you have opened that question. Have you ever disagreed with the Bureau of Mines in the recommendations it has made as to the demand?

Mr. THOMPSON. Well, Mr. Wolverton, I can tell you this, any time that a State wishes to have the Bureau of Mines increase its indicated market demand, all that State has got to do is produce the oil and sell it, and then the Bureau will recognize it. Otherwise there will never be a change and the State would have to stay right where it was. And, if a State pulls it down, the Bureau keeps it down.

Mr. WOLVERTON. Has your commission ever acted differently?

Mr. THOMPSON. Yes; many times.

Mr. WOLVERTON. Many times?

Mr. THOMPSON. And, we have pulled it up successfully by just going ahead and producing it. We could do so now.

Mr. WOLVERTON. Undoubtedly.

Mr. THOMPSON. I want it kept free so that any time we think that the Bureau is unduly limiting us we will be free to go ahead and produce.

Mr. WOLVERTON. So, regardless of the interest of the public generally you want the right to do as you please?

Mr. THOMPSON. In Texas, gentlemen, that is our sovereign right, and we will not submit to this bill. We will go into the courthouse and fight it all the way through the courts.

Mr. WOLVERTON. I think that you have stated your position frankly.

Mr. THOMPSON. Yes. I am against the whole idea of centralization of our Government.

Mr. WOLVERTON. And from the standpoint of Texas you probably feel justified in that?

Mr. THOMPSON. That is right.

Mr. WOLVERTON. But having in mind that Congress acts from a national standpoint, you would not expect that a matter that was justified from the standpoint of a single State would necessarily fix the policy for the entire United States?

Mr. THOMPSON. Well, we have 6,000,000 consumers in Texas and 6,000 producers.

Mr. WOLVERTON. That is true.

Mr. THOMPSON. And I run for an elective office. I am certainly as anxious to please the consumers as the next man, and if I do not I will not get elected.

Mr. WOLVERTON. I notice that Texas is interested in the control of tobacco.

Mr. THOMPSON. What?

Mr. WOLVERTON. I notice that Texas is interested in the control of tobacco.

Mr. THOMPSON. They are getting a bounty there; something goes with it.

Mr. WOLVERTON. I see.

Mr. THOMPSON. There is a Santa Claus with that.

Mr. WOLVERTON. I have often thought that myself.

Mr. THOMPSON. A reward goes with the restraint of production in agriculture.

Mr. WOLVERTON. But the point is that it is Federal regulation. You have asked for that in that case.

Mr. THOMPSON. But they have been given the right to vote; the farmers are given the right to vote on it, and if a certain number or percentage voted in favor of it they will have it.

Mr. WOLVERTON. But it is still Federal regulation.

Mr. THOMPSON. They can vote it down any time they want to by voting not to have it that year.

Mr. WOLVERTON. You would not want that provision with reference to oil?

Mr. THOMPSON. I do not want it with reference to oil at all. The oil business is doing good. It does not need any subsidy.

Mr. WOLVERTON. You want oil placed on a different basis as to regulation?

Mr. THOMPSON. It is doing all right. It is not being hurt anywhere. The public is getting a constantly improved product at a constantly decreased price and the States are prosperous, and that is what we want in government, to have as little interference as possible. God bless those who can get along without government aid. Let us give them a reward and a halo instead of a restrictive law under a dictator.

Mr. WOLVERTON. I think time and again during the hearings I have made plain that I agree thoroughly with what you are saying about conservation. You have said a good bit else that I cannot agree with.

Mr. THOMPSON. About centralizing the Government?

Mr. WOLVERTON. About what?

Mr. THOMPSON. I cannot believe that you believe in having the Government in Washington take over more and more things.

Mr. WOLVERTON. Some of you folks from Texas have spoken so effectively as to this great national resource that is depletable and irreplaceable that you would almost persuade me against my reasoning that it would be necessary to protect it even beyond what you folks are willing that it should be protected.

Mr. THOMPSON. But we have presented the facts which show that there is an increasing reserve. The reserves are building up more and more all of the time.

Mr. WOLVERTON. Maybe you have overbuilt your case so far as convincing me of the necessity of conservation is concerned.

Mr. THOMPSON. There is no necessity for the Federal Government taking over when a good job is being done by the Federal Government and the States both. Let us let well enough alone, unless you want to legislate just to have a new law.

Mr. WOLVERTON. It might seem strange for me to be questioning you and taking the position that I do, in view of the fact that this is an administrative measure, being advocated by Secretary Ickes, and it certainly is not incumbent upon me, a member of the minority, to defend an administration's measure.

Mr. THOMPSON. I will stay with you throughout against Federal domination. I have been against it from the beginning. I think that the committee knows that we have been against it since the beginning.

Mr. WOLVERTON. But aside from that phase of it, I do want to emphasize the fact that there is a consumer interest that must be recognized in all legislation of this type and while I am personally anxious to see that whatever necessary is done in the interest of conservation, I am not willing to overdo the conservation theory to the detriment of the consumer.

Mr. THOMPSON. I thoroughly agree with you on that.

Mr. WOLVERTON. But we disagree, however, as to the *modus operandi*.

Mr. THOMPSON. The free competitive urge will always take care of the consumer.

Mr. WOLVERTON. Not where there is limited production.

Mr. THOMPSON. As long as we produce all that can be consumed.

Mr. WOLVERTON. But you destroy that principle when you limit production.

Mr. THOMPSON. On the contrary, when you produce an amount equal to what is needed, you have cheaper and cheaper prices instead of higher and higher.

Mr. WOLVERTON. I have heard that argument too, but there is something which always keeps the price pretty uniform up our way.

Mr. THOMPSON. Before conservation, the price of gasoline in America was 29 cents a gallon. Today, after 20 years of conservation efforts, the price is 14.4 cents a gallon; less than half what it was—not counting taxes—20 years ago, and you have a far superior product.

Mr. WOLVERTON. Well, we have improved——

Mr. THOMPSON (interposing). I have heard no kick from the consumer.

Mr. WOLVERTON. Maybe you are not in a position to hear from them to the extent I am.

Mr. THOMPSON. I see lots of folks every day.

Mr. WOLVERTON. When you speak of the price going down, let us give the scientists some credit for that.

Mr. THOMPSON. The scientists are entitled to all of the credit; the scientists are entitled to every bit of the credit; every bit.

Mr. WOLVERTON. I did not want you to have the impression that the State regulatory bodies were responsible for the whole thing.

Mr. THOMPSON. Not at all; we take no credit whatever.

Mr. WOLVERTON. That is all.

Mr. COLE. That is all, Colonel.

Mr. THOMPSON. Thank you very much.

Mr. MAPES. Mr. Chairman——

Mr. COLE. Mr. Mapes.

Mr. MAPES. I would like to refer back to a statement you made in answer to one of Mr. Wolverton's questions for some information as to the way this thing works out in practice. You said that the amount that any State produced to meet any market demand could not be increased unless the State violated the recommendations of the Bureau.

Mr. THOMPSON. I do not think I said violated their recommendations. I said that is the beauty of having a recommendation instead of an order.

Mr. MAPES. I congratulate you on your restating it and will not go any further.

To what extent is that done among the States?

Mr. THOMPSON. The States look over their situation and have that fine feeling that they can do what they please about their production. If they think they can sell a little more, they can raise their allowable. If they do they must then manufacture and market it like Illinois is doing, and like Michigan is doing. That is the beautiful part of keeping it free.

Mr. WOLVERTON. But my recollection of the figures is that the Bureau of Mines has actually been under the demand more than they have been above it.

Mr. THOMPSON. Because of this constantly increased use of gasoline. If the product were not good and cheap it would not increase in use.

Mr. WOLVERTON. That is just the point I was making; when you reduce the price there will be more use of it and when it is used it is not wasted.

Mr. THOMPSON. I thoroughly agree with you. I like to see it made cheap, because I do not have any oil myself. I just buy gasoline. I like for it to be cheap. And, that is why they are selling more of it, because it is a better product and is cheap. That is what has made the industry as prosperous as it is.

Thank you, very much.

(The exhibits referred to by Mr. Thompson were retained in the committee files.)

Mr. COLE. Thank you, Colonel.

We will hear Commissioner Sadler.

STATEMENT OF JERRY SADLER, MEMBER, TEXAS RAILROAD COMMISSION, AUSTIN, TEX.

Mr. SADLER. Mr. Chairman and members of the committee, I am appearing here today as the junior member of the Railroad Commission of Texas, representing the Democrats, the Republicans, the Socialists, the American Party, and the plain people.

Mr. WOLVERTON. From Texas?

Mr. SADLER. Yes, sir.

Mr. WOLVERTON. I wanted to make sure that there were some Republicans down there.

Mr. SADLER. Well, the Republicans have all of the wealth down there; the Democrats work for the Republicans, and the Socialists are on relief and trying to get them to divide it up.

I am going to proceed on the assumption that this bill has been urged by two people, the President of the United States and the Secretary of the Interior.

Mr. MAPES. Only?

Mr. SADLER. I beg your pardon, sir.

Mr. MAPES. Will you put the word "only" in that sentence somewhere?

Mr. SADLER. I judge from the questions propounded by the committee, that this bill was proposed by the Secretary and the President; urged by them, and until I am corrected by the committee, I will apply the word "only" to it.

My opposition to a measure of this sort—

Mr. MAPES. I think the committee is in the position and attitude of seeking information now.

Mr. SADLER. I will try to give you all I can, sir.

My opposition to a measure of this sort dates back to when the first Federal control bill was submitted in 1934-36, and since that time I have given much thought to any kind of legislation which would permit the United States Government to step in and remove regulation of the oil and gas industry from the various States.

Since I can recall, the oil business has faced a "crisis" each year, and the favorite cry of Federal control has been heard with marked regularity nearly every 12 months for many years past. That threat alone had brought enough excitement and bedlam to make any industry shudder and wonder if it is worth the price to go ahead and make investments.

However, through some strange medium the industry has managed to get along, and at the end of the year the balance sheets, as a whole, have shown a substantial profit—a healthy profit which has prevented many States from becoming so far in debt that they would have never seen daylight again. Almost as a certainty, as soon as these accountings have been made, the shout of Federal control has abated, and conditions have gone along smoothly, until another upheaval of governmental interference shoots forth.

It appears passing strange that at this particular time when so much is hanging fire over the oil industry that the Department of Interior would spontaneously take the notion of inaugurating radio broadcasts to picture the allegedly "chaotic" condition of the petroleum business. To those who are acquainted with the industry, these broadcasts have struck a responsive chord—responsive in the sense of vehement disapproval.

In that, gentlemen, I refer in particular to one radio program that was put on by the Department of the Interior wherein I heard coming over the airways a voice which said, "Scram, boys, here comes the Feds."

"What will we do?"

"We will have to chase it."

Mr. MAPES. Under what program, Mr. Sadler, was that broadcast?

Mr. SADLER. That was the Department of the Interior program, propaganda, that is put on every Sunday afternoon under the supervision of Mr. Ickes. I did listen to it, Mr. Committeeman, but I have about quit.

Mr. MAPES. I read about that particular program.

Mr. SADLER. Now, they holler down here, "There comes the State boys" and we catch them. We put them in jail. But we do not put on a radio program about it, to let everybody know what we are doing. We try to work along in connection with the Federal boys. But

we do not put on any radio program and we do not boast about it, and I think that that, in just plain old east Texas talk, is mighty little coming from a department like the Department of the Interior—trying to indict by propaganda at this stage of the game.

This is because the situation has been pictured to appeal to the average person who does not have a thorough understanding of the industry and the sincere efforts which States' authorities have made to harness the greatest industry in the world today.

They have depicted the oil man and oil companies as plunderers and pillagers—even to the extent of being on the brink of rogues—who desire to grab all and leave nothing for the benefit of humanity. These radio programs followed on the heels of the renowned Madison oil trial and in the wake of similar charges on the Pacific coast. My hopes are that these broadcasts will not mislead those who are not familiar with the industry and the amount of money which it yearly turns in to States in tax dollars for governmental operation and to relieve the poor and suffering.

To my notion, the Federal Government has been vigilant in its prosecution of monopolies and it rightfully should be. However, it appears that one point in this connection is being overlooked. In order to destroy monopoly by gigantic corporations, individual initiative must be allowed to exist. The small, independent businessman must be given free hand to operate, and he must receive cooperation from those who execute regulatory authority.

As you gentlemen are well aware, the small-business man does not usually have a large amount of capital with which to work. In the event he desires to extend his operations he must go to the banker or to some other concern and borrow money to realize his aims. The money is generally advanced on the theory that the repayment will be within a reasonable length of time, proportionate with the sum loaned.

The same is true in the oil business. The independent operator must prosper or monopolies will result from larger company domination. With the large amounts of capital at their disposal, major companies could soon take over control of independents were a system of production instituted which would extend oil pay-outs over a greater period of time than now allowed. That would place the business on the basis of the man having the most money lasting the longest, and would eventually mean destruction for the independent operator. I am sure that you men realize this is the truth from your own business experience, and you know that practices such as I have mentioned will result in rapid usurpation of independent operators by major concerns.

Mr. MAPES. Mr. Chairman,

Mr. COLE. Mr. Mapes.

Mr. MAPES. Would it interfere with you if you were interrupted there?

Mr. SADLER. No, sir.

Mr. MAPES. I think we are all interested in the independent producer. There is a field right adjoining my home city which has been developed within the last year and a half and I understand there are no major companies operating in the field at all.

What do you say about this, if the Government could devise some plan by which a greater amount of oil and gas could be produced—

and I suppose that is the aim of the sponsors of this legislation—how would that work to the detriment of the independent operator?

Mr. SADLER. Well, if that independent has based his finances, like lots of them have in Texas, on their present system of production where there is no physical waste and some regulatory body comes in, whether it is a State government or whether it is a Federal Government body, and interferes with those plans, it will end up with bankruptcy and the major companies will be in control of all of them.

Mr. MAPES. Of course, the legislation is based upon the assumption that somewhere, some day, in some field, it will be found that there is physical waste, and by correcting that, the producers will benefit as well as the consumers and the public generally.

Mr. SADLER. Certainly they will benefit, sir; but you take for instance—

Mr. MAPES. Then why would not the independent operator benefit if that happens?

Mr. SADLER. He would benefit if that should happen; but yet how has he benefited, if his property is taken away from him?

Now, I do not know about your particular case in Michigan, Mr. Congressman.

Mr. MAPES. What I am getting at, and I do not want you to assume anything from the question, is how is it going to take the profit, looking at it from a long-range point of view, away from the independent operator?

Mr. SADLER. My statement was how would the independent operator survive; and 95 percent of the independent operators in the State of Texas are operating on credit. These loans they have secured are based on the pay-out.

Mr. MAPES. Well, I can see how the independent operator who wants to get out of the business on a pay-out-quickly basis might object, but is it to his interest to object if he can get more oil?

Mr. SADLER. It is not to his interest to object to a greater ultimate recovery, but if he secured these loans where we considered there is no physical waste, should someone else step in and cause that property to be taken over by the creditor?

Mr. MAPES. Pardon me. That is all.

Mr. SADLER. Bankers today consider loans on oil properties and operations among their safest investments, because of the systematic regulatory measures that keep the industry on a profitable basis.

Right now let me go on record that I am a firm believer in the conservation of our God-given resources, and I am sincere in my view that we should do all within our power to preserve them, at the same time using them to the best advantage for the present generation.

Each month the Bureau of Mines issues a forecast on the amount of crude which it calculates will be required from each of the several oil-producing States for the coming month. On this basis, the State regulatory bodies set their various allowables, the majority of which are below the Bureau's figures. The lower figure is fixed to allow for new well completions and for production increases which may be required by various operators to protect their markets.

The Bureau has been fairly accurate in its forecasts, and it has done much toward keeping national production on an even keel. Texas has stayed under the Bureau's estimates. The railroad commission's records show that from January through September, Texas

production was 25,009,500 net barrels, or 6.6 percent below the Bureau's figures. Production records for the last 2 months have not yet been completed. I feel certain that they will be in line with the preceding statement that Texas is still under Federal calculations.

In order to remain within the Bureau estimates, Texas oil fields will be shut in from production 113 days out of the year's 365 total, leaving 252 producing days.

The Bureau issues its estimates for the purpose of preventing the market from being flooded with oil; in other words, to keep supply and demand on a somewhat equal basis. To my notion, as long as States remain within the Bureau's estimates in setting their oil allowables they are likewise permitting operators to receive the highest return for their product.

At the present time, in order to cooperate with the Bureau of Mines, we are denying Texas operators and refiners the amount of oil which they need and have asked for in monthly nominations. We are doing this in order to keep faith not only with Washington but also with other oil-producing States. Naturally, we are hopeful that the Bureau will soon make a larger allocation for Texas crude, but until that time, we intend to keep Texas production within the Bureau's estimates.

Mr. COLE. May I interrupt you at this time?

Mr. SADLER. Yes.

Mr. COLE. What was the allowable for Texas for the month of November?

Mr. SADLER. One million—you mean the allowable as set by the commission?

Mr. COLE. Yes.

Mr. SADLER. 1,298,000 barrels.

Mr. COLE. So when you asked the Bureau of Mines in Washington this fall to declare an allowable of 1,844,000 barrels—I think that is the figure.

Mr. SADLER. Yes, sir.

Mr. COLE. While you were in Washington, they declined to do that, and your State commission followed suit?

Mr. SADLER. Yes, sir. They gave me their reasons for declining to do so. I went to Washington.

Mr. COLE. The Bureau of Mines gave you their reasons.

Mr. SADLER. Yes, sir.

Mr. COLE. And their reasons were sound enough for you to follow?

Mr. SADLER. Yes, sir.

Mr. COLE. All right, sir; you may proceed.

Mr. MAPES. Is there any discrepancy between that last statement of yours and the statement of Colonel Thompson, when you say, "We are hopeful that the Bureau will soon make a larger allocation for Texas crude, but until that time, we intend to keep Texas production within the Bureau's estimates"?

I got the impression from what Colonel Thompson said, that the Bureau never gave you a larger allocation until the State went above it itself.

Mr. SADLER. I do not know that they ever have, Mr. Congressman. I know I requested them to do so and they gave me their reasons for not doing it.

Mr. MAPES. Did not Colonel Thompson say that they went ahead of it time and again?

Mr. SADLER. Well, the people of Texas just elected me down there last year. Mr. Mapes. I went on the 1st of January. Since the 1st of January we have not gone ahead of the Bureau of Mines. Prior to the 1st of January 1939 they probably did. But since that time they have not.

I may go so far as to say that some of our refiners are importing oil from other States because they cannot get their demands supplied from Texas crude. This is not a normal condition, considering the amount of crude which Texas is capable of producing.

I do not claim that Texas has been perfect in its administration of oil- and gas-proration laws. I do not say that Texas' laws are perfect. We have made mistakes, and we will likely continue to make errors, as we are not infallible. I do not believe that any single living individual is, and neither do I believe that any administrative body, either Federal, State, or local, is.

We have been sincere in making our errors, and they have not been made knowingly. Texas, as the largest known oil producer and having the largest oil reserve in the world, has had a Herculean problem to reach the status which it enjoys today. For the short length of time which proration has been in effect in our State I believe that it has made remarkable strides, and it will continue to do so. We have nearly 90,000 wells in Texas, and each one must be dealt with separately in a final analysis.

Practically every move of importance we have made has resulted in a court test. In the majority of these cases we have won, and in those which we have lost amends have been made in order that the commission may properly bring about the desired effect.

No one need believe that the passage of the Cole bill will bring about a land of milk and honey in the oil business such as some officials would have you believe. Instead of that, my prediction is that the greatest series of oil cases the country has ever known will be showered upon our courts. Every step which would be taken would be thoroughly tested, and I speak this from experience and observation.

I do not believe that any 1 of 2 or 3 or 4 or 18 men are capable of regulating the Nation's gigantic oil industry. Texas has gone to great expense to bring about proration to its oil business, not only in the matter of personnel but in the collection of engineering data and the execution of laws, rules, and regulations. Now, the Cole bill proposes to duplicate this work of more than half a dozen years and take practically every regulatory power which the State possesses.

It has been said that under the Cole bill there would be points of difference which would arise between State and Federal authorities as to certain problems. This is openly admitted, and it is further said that these differences would likely be numerous during the early workings of the Cole bill, but that as time would pass such friction would materially decrease. Under the measure, it is provided that wherever differences crop out, Federal authority would prevail over State opinion. With this in mind, it is easy to see the reason for the decrease in Federal and State difficulties. Affairs would reach such a point that State authorities would cease to protest or to intervene, knowing that they would be butting their heads against a figurative brick wall.

I wish you gentlemen had the opportunity to visit each of the 521 oil fields in Texas instead of merely the gigantic East Texas field

which you will see in a short time. Only then would it be possible for you to realize in a measure the task which confronts the Texas Commission. We have practically every problem known to the oil industry with which to deal, and I am firm and steadfast and sincere in my opinion that the Federal Government would not do a more efficient job than the commission has done in the length of time which it has had to control the industry.

By no means does Texas intend to turn over lock, stock, and barrel its rights of sovereignty to the Federal Government, and no truer example of giving up State's rights would be than to turn loose our government of nearly 40 percent of this Nation's oil production and 54 percent of known oil reserves. I believe that every citizen of Texas is behind me when I say this. I do not mean to belittle the National Government nor to oppose its pathways toward aiding and protecting our citizens.

My point is that control of Texas oil industry belongs in Texas, as one of our State rights and for the preservation of the type of democracy for which our forefathers bled and fought and died. We have endeavored to carry on that heritage without relinquishing one iota of authority. I am sure that you gentlemen feel the same about the rights of your home States with the same sincerity as we do in Texas.

During the early days of proration in Texas there was much "hot" oil, and it was indeed a difficult task to put a stop to this practice. I am sure that you are familiar with the details of the fight which Texas had in this connection, so there is no need of me repeating it to you. But let me say that the Connally Act was of much benefit, serving as a backlog for State proration laws. You know it has functioned with much benefit, but aside from the power which it allows, we in Texas desire no greater Federal control. The Connally Act has served to an advantage where the Cole bill's passage would mean total abandonment of State rights and dissipation of money and energy that could be put to a more profitable return elsewhere in our governmental structure.

I will not say that there is no illegal oil in Texas today. It would be folly to make such a statement, just as it would be fallacious to say there is no crime in the Nation today despite Federal, State, and local laws. However, I will make the statement that the amount of "hot" oil in our State today is the lowest in history, and that the industry as a whole is healthier than ever before. "Hot" oil has come to a trickle, and the amount is so infinitesimal that it is hardly worth mentioning. This is not to indicate that the commission has relaxed its vigil for such practices, because our personnel is thoroughly instructed to track down every clue where illegal operations are indicated.

It is my earnest hope that none of you will be misled as to the conditions in Texas, and I am sure that officials of other prorated oil-producing States can speak for themselves. The headway which we have gained during recent years has been outstanding, and our records are in better shape than ever in the past. Federal control would mean throwing the oil business in Texas back 5 or 6 years, because new officials would require that length of time to become familiar with the work which has already been accomplished, and also to become acquainted with variegated conditions in thousands upon thousands of oil fields throughout the Nation. The industry could offer its whole-

hearted assistance, but there is a limit to human understanding, and the oil business would be severely penalized to its own detriment.

I am sure you remember the days of Government operation of railroads during the World War. I don't believe that you could call the job entirely successful. Today the Government has been forced to dole out large sums of money so that rails may continue operating. You are also aware of the plight of the farmer. That same condition could come about in the oil industry—an industry which has asked no quarters, but which turns in millions of dollars annually for Federal, State, and local governmental disposal. Why destroy the goose that lays the golden egg? Do you recall any other industry which enjoys the sound financial status which the oil business does?

Federal control of any industry is merely short of expropriation, and we have seen that sort of practice in our neighbor's front yard. Any legislative measure which gives a government control of private business, such as the Cole bill makes allowances for the oil industry, strikes at the bulwark of our democratic Constitution. While the bill does not crush nor annihilate private enterprise, it limits and restricts its course until competition, the backbone of business, is pushed into the background, thereby foreshadowing monopolistic operations.

Federal control of the oil business reminds me of an adage which my dad used to quote to us when we were down on the backwoods farm. It was, "Don't worry about why a black hen lays a white egg—get the egg." It seems to me that proponents of the Cole bill aren't satisfied with just having the egg, they want to worry about where the egg comes from, and they want to get the hen to see what makes her lay.

Texas is proud of her oil industry and every one of her operators. It is true that the commission and some operators have come to odds over various administrative duties, but that is to be expected. However, as a whole we have all worked together for the good of the State as a whole. We are likewise proud of the job of proration which we have done, and for it we make no apologies to anyone. If we are permitted to retain the authority which is justly ours, we will continue to progress and do better.

If you were an oil operator, would you want the administration of your business a couple of thousand miles away? If some point of difference arose which you did not believe a branch office handled properly, would you want to have to get in your car, ride on a train, or take an airplane to the Nation's Capital way up there in Washington to ask for a reconsideration? I don't believe you would.

In Texas the entire commission is at the disposal and convenience of operators and refiners. It is hardly a day's trip by any modern conveyance from any part of the State to the commission's offices. This allows any operator to come directly to the seat of government and protest any district-office disposal of whatever problem with which he is confronted. Don't you believe that if you were an operator you would appreciate an arrangement of this sort more than you would the Washington situation, which I have previously mentioned? I think you are agreeable.

As statesmen charged with the duty of making our national laws, I do not believe that you will recommend passage of a bill which tends to discredit the remarkable and meritorious work which Texas and most of the other oil-producing States have done. I don't believe that you will recommend passage of a bill that seeks to eat away the bone and sinew of democracy. My opinion is that you will give credit

its just dues and that you will leave control of the oil industry with the several States.

As for those States which do not have proper proration laws, I am sure you can find means of bringing them into line. This can be done without penalizing those States which have worked hard and conscientiously for the right and have administered their laws properly. We do not live under a dictatorial code. We live under a democratic Constitution which guarantees every man, woman, and child freedom of speech, action, and religion. Let us go forward, not backward. And let us crush under our heels every vestige or indication of dictatorship.

I have heard quite a bit of discussion here this afternoon in the questioning of Colonel Thompson about the origin of the 15-day shut-down of the oil industry. I have heard quite a bit of discussion particularly this afternoon about this 15-day shut-down we had in Texas. First, I want to admit that we shut down for 15 days, so you will not have to ask me that question.

Now, prior to this shut-down some 10 days and some 10 days prior to the time that the Humble Oil & Refining Co. cut the price of crude oil, I got in an airplane and went from Austin, Tex., to Kilgore, met with the East Texas operators and discussed the probability of a 15-day shut-down or a 30-day shut-down. I am not a clairvoyant nor a mind reader. I cannot read the minds of the Standard Oil officials in New York so as to tell whether they are going to cut the price of oil; but I was trying to find out if those refineries could exist for 15 days without additional crudes. I left Kilgore and went to Amarillo, Tex., in the other corner of the State, some 800 miles away, and discussed the shut-down with them. I came back to Austin next morning and discussed it with the other members of the Commission and that subject had been under discussion for some 10 days when the Humble Oil & Refining Co. cut the price of crude.

I do not think you could lay that to a price-fixing measure. It made me mad as the dickens when the Humble cut the price of oil. I did not like it. But, I had been thinking about a shut-down before they cut it, and finding out who needed oil and what and where they could get it. I jumped on the Humble. Incidentally, I am right in line with you gentlemen. I am talking about the consumer. I went so far as to, I think, maybe violate the State laws down there in asking the public to just buy gasoline from those companies that did not participate in such practices, and those which would give them the lowest price.

I will admit frankly that proration, whether it comes from either the Federal or the State, in a certain sense, anyway that you figure it, is going to be a form of price fixing.

Now, the question is just which can operate with the least amount of price fixing, whether it be the State or whether it be the Federal Government.

Now, this morning there was some discussion here about these engineers, experts, that work for the Federal Government being more efficient than those who work for the State of Texas. We are having a hard job right now keeping engineers, efficient employees, because every time we get a good one some of Ickes' bunch in Washington hire them away from us. If they were to go in down there now and take over the State of Texas, about 50 percent of those employees that would be turned loose by the Department of the Interior would be

the ones who formerly had worked for the Railroad Commission of Texas.

Just the other day the head man down in Texas told me that he wanted to hire our chief engineer in this east Texas oil field. He said, "Any day you do not want him, we will hire him."

We possibly do not know as much about these things as some of these and some of those Ickes hires and sends down here to tell us what to do. We may not be the smartest people in the world, but, gentlemen, we think that we are doing a fairly good job of conservation.

Now, there is another subject that I want to touch upon, and I want to predicate it with this remark—not getting into politics, but I want to predicate it so you will understand my statement. I am a Democrat. I am for the President for a third term and I am going to openly support him. I am not in favor of some of his Cabinet members and some of the policies that they are advocating.

Now, when it boils down to these two people only who are sponsoring the Cole bill—that is all I could get from you gentlemen this morning—two are behind it, and that is the President and the Secretary of the Interior.

MR. MAPES. You are for one of them and not for the other, I take it?

MR. SADLER. I am not for Ickes and his Federal control.

I have gone to the bank on several occasions in the last 3 or 4 months, talked with my banker, borrowed a little money, and gone to Washington to find out what Mr. Ickes wanted.

Now, first let me take up the President on this matter. I do not think that he ever learned a confounded thing about the oil industry over there in the State of New York with a governess and private tutors, as he had when he was coming up. I do not think that he comes in contact with the oil industry now, except when he drives about his Hyde Park estate in that automobile without any top on it and he probably sees a sign down there where he can change oil, or something.

Now, my personal opinion of this matter is that Mr. Ickes has spent too much time over at the White House talking to the President. [Laughter.]

In going to teachers' college down there in east Texas—gentlemen, don't laugh at me. I am serious.

MR. MAPES. We are not laughing at you; we are laughing with you.

MR. SADLER. This is a serious matter with me.

MR. MAPES. I just thought perhaps that the minority ought not to get into this discussion; that is all.

MR. KELLY. You are for the President for a third term?

MR. SADLER. In going to teachers' college down in east Texas, they gave me a——

MR. WOLVERTON. As I understand you have more confidence in the President in a third term than you have in the present?

MR. SADLER. I thought, Mr. Congressman, that I was just making that remark to predicate my statement so that you would not——

MR. WOLVERTON. You are on a firm basis from a Republican standpoint.

MR. SADLER. But anyhow, in going to that teachers' college in east Texas, they handed me a book. They called it a psychology book, and

started me to studying it. I read a little of it, and I have tried to psychoanalyze Mr. Ickes on this oil situation, and for the interest of the people of Texas, the interest of the oil operators, I, for one, am not willing to turn it over to the Secretary.

Gentlemen, I thank you for your patience.

Mr. MAPES. I would like to ask one question for information relating to your shut-down.

As I understand it there is not such a thing as a complete shut-down of production of oil. Is that correct?

Mr. SADLER. I do not understand what you mean, sir.

Mr. MAPES. This is what I mean: Even during your shut-down, you produced a certain amount of oil in the State. Is that correct?

Mr. SADLER. Yes, sir.

Mr. MAPES. My question was leading up to this question: What proportion of the usual amount did you produce during the shut-down?

Mr. SADLER. Approximately one-seventh.

Mr. MAPES. As little as that?

Mr. SADLER. Yes, sir.

Mr. MAPES. I thought it was larger.

Mr. SADLER. Water conditions and pressure conditions kept us from shutting some wells down.

Mr. WOLVERTON. That was done to preserve the wells?

Mr. SADLER. Yes, sir.

Mr. MAPES. Some wells are allowed to produce all that they ever produced even during shut-downs, are they not?

Mr. SADLER. Stripper wells, which only make two or three barrels a day.

Mr. MAPES. I am just curious to know how you and Colonel Thompson differ in your final results toward this proposed legislation.

Mr. SADLER. Well, I cannot see that we differ at all. We are both against it.

Mr. MAPES. That is the way it struck me. [Laughter.]

Mr. SADLER. But, if you gentlemen will pardon me, I want to make apologies for referring to politics in this matter, but I am a born Democrat and am still a Democrat, and I will fight this bill to the very last, because I think it is wrong. Mr. Roosevelt makes mistakes, and Mr. Ickes can make a whole lot of them, and there have been quite a few misinterpretations about my position on Federal control and the Democratic Party.

Mr. WOLVERTON. Did I understand you to say that you asked the people of Texas not to buy cut-rate products?

Mr. SADLER. Not cut-rate oil.

Mr. WOLVERTON. I did not quite understand what you said and I just wanted to clear it up in my mind.

Mr. SADLER. I asked the people of Texas to patronize those who had not cut the price.

Mr. WOLVERTON. You asked them to patronize those who had not cut the price?

Mr. SADLER. Yes, sir.

Mr. WOLVERTON. On the theory that Colonel Thompson gave, that there was too much in storage?

Mr. SADLER. No, sir. We had some companies down there that were selling gasoline cheaper than the Humble that had not cut the price of crude, and I wanted the consumer to get the advantage of

that cheaper price so as to kind of help the poor royalty owner and farmers.

Mr. MAPES. You spoke about the control of the industry by the Federal Government if this Cole bill should pass. So far as I am concerned, and speaking for myself, I can see how there may be a difference of opinion as to whether there is sufficient necessity for the passage of additional Federal legislation and how many of us can raise the question as to whether to add to the powers of the Government, and certainly the timing, we can all agree, I think, whether this bill is good or not, the timing of it may be bad; but would you say that the State of Texas controls, through your commission, the oil industry now?

Mr. SADLER. The oil industry of the Nation?

Mr. MAPES. No; in the State of Texas.

Mr. SADLER. I think we have our finger pretty well on the pulse. It flutters a little bit every once in a while.

Mr. MAPES. I did not understand you.

Mr. SADLER. I say, I think we have our finger pretty well on the pulse. It flutters a little bit every once in a while; but we have very little hot oil, and the industry is cooperating.

Mr. MAPES. Of course, this has nothing to do with the hot-oil regulation.

Mr. SADLER. Well, Mr. Congressman, it would have something to do with it, would it not?

Mr. MAPES. It makes no attempt to deprive the State authorities of the right to prevent the shipment of hot oil in interstate commerce. As I understand it, this bill simply proposes to make regulations to prevent the wasteful production of oil.

Mr. SADLER. Yes, sir; that is all we can do. We have control of that. Still, it is turning it over to Mr. Ickes, is it not?

Mr. MAPES. There is not a question for debate on that, but what I am getting at is this: Can we not discuss it—well, I will say temperately—and raise the question without going to the extent of saying that the passage of this legislation would put the industry entirely under the control of the Federal Government?

Mr. SADLER. As long as you can turn it over to the Department of the Interior, I think you just might as well have a dictator over here, a Mussolini.

Mr. MAPES. Of course there will be a change of administration soon. [Laughter.]

You are opposed to the administration of the law rather than the law itself?

Mr. SADLER. No, sir; I am opposed to all of it; but I am sure enough opposed to that part of it.

Now, I think in Texas that we need some regulation over refining. I may differ with Colonel Thompson on that. I think we do, and I think we can get a law to that effect, but there is no use of turning the whole dern business over to the Federal Government just because we need a little amendment to the statute there.

Mr. WOLVERTON. Colonel Thompson spoke very highly of the helpful cooperation that is now existing between the Federal bureau, through its recommendations, and the States. He spoke with a degree of confidence of the ability and the effectiveness of that cooperation.

You seem to condemn it lock, stock, and barrel.

Mr. SADLER. No, sir; I beg your pardon, sir. I do not condemn the Bureau of Mines. That is under the civil service, sir. They get that information. And I went up there to satisfy my own curiosity about the matter, and we are going to stay under the Bureau of Mines' estimate as long as I am a member of that commission and can get one other member to vote with me, because I believe in it; and I think that is control enough. They are telling us what we can produce. Now, they want to come down here and tell us how we can produce it—tell us how we can prorate it between fields.

Mr. WOLVERTON. It does seem to me that the good opinion that you have as to the part that the Federal Government has already taken might have tempered your fear as to the future if they took on a new activity.

Mr. SADLER. No, sir; not in that particular. There have been some statements emanating in the press during the last few days about various things that make me kinda wonder about some folks.

Mr. WOLVERTON. You are speaking of folks in the administration?

Mr. SADLER. Yes, sir; I am.

Mr. WOLVERTON. Well, when the committee took——

Mr. SADLER. Pardon me.

Mr. WOLVERTON. Go ahead. You are more interesting than I am. [Laughter.]

Mr. SADLER. And this bill [laughter] as stated by this committee this morning—I did not read this in the papers—but this bill is recommended by one of those gentlemen, Mr. Ickes. The chairman read a statement that it was recommended by the President. I was up in Washington one day finding my way over to the Senate Building, and I got a Congressman over there to call Chairman Cole's office and wanted to know if I could get a copy of the bill. Someone in his office said that it had not come over yet, and being a country boy, I asked when they expected it over from the White House. They said about 2 o'clock.

So, I just judge that the White House had something to do with it.

Mr. WOLVERTON. Well, I think in justice to the President that you might refer to the letter that he wrote to the chairman of the committee, which indicated a desire on his part to have the committee look into the legislation. I did not take it that that was actually sponsoring the legislation to the extent of saying that, "I want this bill," as we have been familiar with him in years in the past. I think he merely suggested that it be a matter of study and that is the purpose of this committee.

When we had our hearings in Washington—I do not know whether you were present or not.

Mr. SADLER. No, sir.

Mr. WOLVERTON. But certainly I questioned Mr. Ickes as thoroughly as I knew how as to his reasons for asking for this additional power or authority and jurisdiction. I pursue the same course when you folks opposed to the bill come before us and it is my purpose, and my desire, to get all of the information I can get on both sides of the question and then this committee will give it the consideration that it is entitled to have before it makes any recommendation in the matter. It is the desire of this committee to have every possible help not only from the standpoint of those who favor it, but likewise from those who are opposed to it. My questions were just as searching as I

could make them, when addressed to the Secretary, in order that I might understand the reasons for this bill. And when this hearing opened this morning, I stated that I was anxious to know first whether the waste existed that the Secretary thinks this bill is necessary to correct and if such waste does exist whether it is necessary for Federal legislation.

I have been a bit disappointed up to the present moment that no one has yet taken the bill and pointed out the dangers here and the dangers there, and that there is no need for this, and there is no need for that; but there has been a general condemnation of the bill without giving any specific reasons for the objections. That is the way it has struck me up to this present moment.

Mr. SADLER. My first objection to it is that it is a child born in the mind of Mr. Ickes, that he needs that additional authority.

Mr. COLE. I understood you to say that you hoped the committee might visit other fields in Texas than the East Texas field. We have been in practically every major field in Texas. We were there in 1934. About the third term, what are we to conclude as to Texas' favorite son?

Mr. SADLER. I ain't for Garner. [Laughter.]

Mr. COLE. You have stated that the President and Secretary Ickes alone support the Cole bill. In reading the New Orleans Item-Tribune of yesterday's date I saw this article. There are several articles about oil, but one entitled "Cole Hearing Starts at 10 A. M. Monday." I quote this paragraph from the very well written article:

This proposal—

Speaking of the Cole bill—

has met the endorsement of the major oil operators in the United States, but that vanishing American, known as the small independent, is up on what is left of his hind legs and is pulling no punches in his fight against it.

Mr. SADLER. What paper is that in?

Mr. COLE. That is in one of New Orleans' leading papers. It is the Item-Tribune, December 10, 1939.

Mr. SADLER. May I interrupt? Did it say the majors?

Mr. COLE. So there must be a lot of people for this bill that you have not heard about.

Mr. SADLER. Did it say that the major companies were for it?

Mr. COLE. That is what it said. I just read it exactly, word for word.

This proposal—

Referring to the Cole bill—

has met the endorsement of the major oil operators in the United States, but that vanishing American, known as the small independent, is up on what is left of his hind legs and is pulling no punches in his fight against it.

So that you are not quite up to date on this.

Mr. SADLER. It does not make sense in connection with that American Sixty Families Mr. Ickes has been opposing.

Are there any further questions, gentlemen?

Mr. COLE. I think not, Mr. Sadler. Thank you very much.

The committee will recess until tomorrow morning at 10 o'clock.

(Thereupon, at 4:15 p. m., the committee took a recess until 10 o'clock the following morning, Tuesday, December 12, 1939.)

PETROLEUM INVESTIGATION

TUESDAY, DECEMBER 12, 1939

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE OF THE COMMITTEE ON
INTERSTATE AND FOREIGN COMMERCE,
New Orleans, La.

The subcommittee met, pursuant to adjournment, in the Roosevelt Hotel, New Orleans, La., at 10:20 a. m., Hon. William P. Cole, Jr., presiding.

Mr. COLE. The committee will come to order, please.

It is my sad duty to announce that Mr. Carl E. Mapes, a member of this subcommittee, died suddenly this morning at 7 o'clock.

Mr. Mapes was born December 26, 1874. He was elected to the Sixty-third and succeeding Congresses.

We are deeply affected by the shocking and unexpected occurrence.

We of the subcommittee, as well as all others who had the privilege of association with Mr. Mapes, will remember him as one of the fairest, most conscientious, most able, and lovable men who has served in Congress in our time. He was distinguished by sterling qualities of character, which deeply impressed all of his friends and associates.

Out of respect for the memory of Mr. Mapes, the subcommittee will terminate these proceedings at this time subject to call at a later date by the chairman.

The committee will accompany the remains to Grand Rapids, Mich.

For the benefit of those here who were expecting to appear before the committee today and tomorrow, the committee wants to thank you for the cooperative spirit you have shown. Just what the committee can announce at a later date for your convenience and accommodation in order that we might receive your statements, we are unable to say at this time.

It has been suggested that some statements prepared for the committee today and tomorrow might be filed in the proceedings at this time. If you care to do so, that is agreeable to the committee. If, however, you want to keep those statements for a later presentation in a personal appearance before the committee, I will assure you very definitely that such an opportunity will be provided. I doubt very much if that opportunity will be available to you until after Congress convenes. Do you want to say anything, Mr. Wolverton?

Mr. WOLVERTON. No.

Mr. COLE. Mr. Kelly?

Mr. KELLY. No.

STATEMENT OF ERNEST O. THOMPSON, MEMBER OF THE TEXAS
RAILROAD COMMISSION

Mr. THOMPSON. Mr. Chairman, on behalf of the Interstate Compact Commission and the regulatory authorities of the various States, I wish to state here that we are, like yourselves, and the members of your committee, deeply shocked by the loss of our good friend Congressman Mapes. Through the years that we have been associated with this committee we have been uniformly impressed with his fine character, his kindly nature, and his justness and fairness.

I think I have never known a kindlier man than Congressman Mapes.

We extend our sympathy to the committee and ask that it be conveyed to the family.

Mr. COLE. Thank you, very much. Is there anything further to come before the committee at this time? If not, the committee will stand adjourned out of respect to the memory of Mr. Mapes.

(Thereupon, at 10:30 a. m., the committee adjourned as above indicated.)

PETROLEUM INVESTIGATION

SATURDAY, JANUARY 16, 1940

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE OF THE COMMITTEE ON INTERSTATE COMMERCE,
Los Angeles, Calif.

Mr. COLE. The committee will come to order. The committee functioning under authority of House Resolution 290. The provisions of the resolution I am sure are familiar to those who are to appear before the committee, so that in the short time the committee is privileged to be in this great city we are hopeful that the witnesses will confine their statements as much as possible to the problems before us. These problems, as I stated are as familiar to you as they are to the committee. The committee is a subcommittee of the entire House Committee on Interstate and Foreign Commerce similar to the one which was here in 1934, with the same personnel with the exception of Mr. Pearson, of Tennessee, serving in the place of Mr. Pettengill, of Indiana; and Mr. Holmes, of Massachusetts, serving in place of late Representative Mapes, of Michigan. Congressman Kelly, of Illinois, and Congressman Wolverton, of New Jersey, were members of the subcommittee in 1934.

The committee is delighted to not only be back in California again dealing with the problem of such interest to this State, but we have with us in addition to the personnel I have just named, Mr. Crosser, of Ohio, Mr. Wolfenden of Pennsylvania, members of the General Committee and last but not least one of your own Congressmen from this State, the chairman of the Committee on Interstate and Foreign Commerce of the House, Chairman Lea. It was upon the invitation and suggestion of not only many residents of this State interested in petroleum one way or another but of Chairman Lea, that we are here today. I would gladly yield the gavel to Mr. Lea, he is my chairman, but he has asked I proceed as chairman.

The committee is honored at this time in having as the first witness before us one whom we met for the first time a few minutes ago, your distinguished Governor. Governor Olson.

STATEMENT OF HON. CULBERT L. OLSON, GOVERNOR OF CALIFORNIA

Mr. OLSON. Mr. Chairman and members of your committee: I come here more for the purpose of having the pleasure of welcoming you to California and to serve you in any way I can in the investigation of your committee into the subject before it and more in the capacity as chief executive of the State hoping that you will be given full opportunity to hear all facts available and all views of representatives of the oil industry of California than do I come as a witness myself.

I do not believe that I am as competent so far as these technical phases and data with reference to the subject of your inquiry as others who will be called and appear before you. But it is proper, and I do take pleasure in welcoming you here and offering every facility at my command and in inviting everyone who wishes to be here to appear before you and contribute whatever information he may have to your committee.

Mr. COLE. Governor, we will be very glad to have you take a seat if you prefer.

Governor OLSON. Well, I shall be very brief and this will be satisfactory.

California is the second largest oil-producing State in the Union, as you know, and its oil production is not under State regulation. In line with the policy of other oil-producing States and the declared policy of the national administration the California Legislature last year passed the State oil-and-gas-control bill which received my approval. Those who engage in the oil-producing business were divided, some of the producers were not opposed to the bill; others were definitely opposed to it and caused it to be submitted to a referendum vote of the people, and at the election held last November it was defeated by a very substantial vote. While that bill was in keeping with the platform on which I was nominated and elected as Governor and I believe that its adoption would have served the cause of conservation and prevention of waste and the interests of the consumer of petroleum products, and while I believe the issue is very much confused and misunderstood I myself must bow to the expressed will of the people and say to you at the present time any oil-control bill, whether State or National, is not favored by a majority of the people of this State.

Whether that attitude may change in the future remains to be seen.

You will no doubt hear from the representatives of the various oil-producing groups and others who are of course competent to give you technical information and facts which you seek, as well as the reasons advanced in support of or in opposition to an oil-control measure as it may affect the oil industry of this State.

Very frankly, I might say to you it seems to me that those engaged in the industry are either for or against regulatory measures, not upon any principle of conservation or securing for the consumer the products of petroleum at reasonable prices, but from the standpoint of what seems to them to be to their present immediate profit in the industry.

Oil and gas is one of the richest natural resources of California and perhaps it is the greatest industry at the present time. Its products have become as much a public utility and impressed with the public interest as any other of the recognized public utilities. But if the people decide that we should not recognize it as such and deal with it as such, that there should be no governmental control in the producing, refining, and marketing of oil and gas and other products, which the measure defeated last November was directed to accomplish, then, of course, these matters will be left entirely to the control of private industry unless, indeed, the Federal Government sees fit to enact a national act. I do not believe that you will hear from anyone who appears before you speaking for or against the enactment of a national oil-control bill who will not declare himself in favor of oil and gas conservation and the elimination of waste and wasteful methods

of production to further their special opinion on the regulatory provisions of over-surface or under-ground waste or overproduction. Waste is a question on which, as I say, those engaged in determining it will divide according to the way that seems to be for their greatest immediate profit or financial interest.

A proration of production, which I understand is not provided for in the so-called Cole bill, is, however, I believe, the point of greatest controversy. Whenever that is proposed—you know already that it has caused the utmost confusion in the past. Before this last year there was an effort to enact an oil-control bill which provided for its administration by representatives of the industry, selected by the industry. That bill was defeated some years ago. It was defeated largely because of the argument that it was placing the administration of the oil industry by law in the hands of privately selected representatives, and the fear that the stronger group in the oil industry would dominate the administration.

The fact is that the record shows that no oil bill was ever submitted to the people by way of initiative or referendum on the ballot in California that was adopted.

I attribute in part the defeat of the oil bill passed on by the people last year to confusion and lack of knowledge of the subject and the fear that there were not sufficient safeguards against the use or control to maintain high prices to the consumer, rather than to have the effect of conserving the interests of the consumer as well as conservation of the resources.

Some producers wish to produce to the limit of the capacity of the wells they control, and with a view of securing the greatest possible immediate profit, regardless of the question of conservation or waste. That is the reason for opposition by some producers to any regulation or proration of production, and I doubt very much that any in the industry would defer to National or State control of production for the purpose of prevention of that kind of waste which consists of shipping California's oil to Japan and other countries as war material.

Of course, you know a great deal of the products of petroleum of California are so wasted. My own view on this matter is that the Federal Government is in a better position than the State government to prevent this kind of waste, the sending out of this country of our oil or oil products to supply a market furnished by the warring nations, instead of confining its utilization exclusively to our domestic market and to the long-time needs of the American people. It seems obvious to me if we are going to have real conservation of our oil and gas resources and their utilization for the economic welfare of the people and the industries of this country, then regulation cannot stop merely at laws which seek to prevent specific surface waste such as the unnecessary blowing away of natural gas into the air, or the underground waste through unscientific and inefficient production, or overproduction, in order that some may make profits on shipments to foreign markets; but must go further and protect the consumers of this essential utility through the regulation of prices to the consumer, based upon the scientific and orderly consideration of cost.

Now, I am going to take this occasion to do a little propagandizing among my constituents regarding a measure coming before the special session of the legislature which I have called—and I apologize for this—but I do think that it is a conservation measure to have a

severance tax on the production of oil and gas in the State of California. That is not very popular in this room. No one engaged in the oil-producing business or who is receiving benefits from oil production is out actively supporting my recommendation to the legislature for a severance tax. I do feel, however, and I take this occasion to say to the oil industry that a severance tax is actually in the interest of conservation and is unanimously approved by taxation students and experts as a fundamentally sound basis of taxation. It is also one that has been adopted in all of the other oil-producing States and I do hope that we may have that kind of conservation within the next 30 days.

I shall be pleased, gentlemen, to answer any inquiries that either of you may see fit to make. Perhaps I should apologize for not going into the subject of your inquiry in greater detail, any further than generally stating my views as I have done, but I am sure with the representation that there is here today of the oil industry, you will find all of the material and reasons furnished you for or against the enactment of the Cole bill, as voiced by California's oil industry, and certainly any factual matters in regard to that industry that you see fit to inquire for.

I do want to take this position here, that instead of appearing before you or having anyone appear before you as representing an advocacy of the policies that may be followed finally by the Federal Government in regard to oil control, I want to have everyone here, for or against it, who is prepared to contribute opinion and reason for his position for or against that policy, to be given a full hearing. They are all representatives of the oil industry in the State of California, and I am therefore going to turn it over to them to furnish the witnesses on the subject of that inquiry. Thank you.

MR. COLE. Governor, are there any other witnesses representing the State?

GOVERNOR OLSON. No; that was my purpose in the last statement, to say that there are no witnesses representing the State as to the position of the State government—I have tried to indicate briefly my policy and the policies of my administration. I did not want to appear here and I do not appear here as taking any definite position with regard to the Cole bill. I have felt that it would be better had we adopted the State measure, but I do not want to take the position in opposition to the Cole bill, because any bill, no matter how far it goes, in an attempt to serve the principle of conservation and the prevention of waste, is of course based upon the principle for which I stand.

I cannot engage in a controversy which is purely within the industry itself as to whether now the Federal Government should or should not adopt the Cole bill. And I think you have observed, since the people recently voted on the bill I did approve for State control and regulation, my present position is to bow to the expressed will of the people.

As to policies of conservation and prevention of waste and utilization of oil and gas and regulation of production for the benefit of our domestic markets and protection of consumers, I will always be for them, whether through State or national action.

As stated, I would have preferred that it be through State action and that the bill defeated had been adopted.

MR. COLE. May I ask a question or two?

In the State act which was recently defeated, in section 1, is found this opening sentence:

The conservation of crude petroleum oil and natural gas and products thereof by the people of this State is essential to the general welfare. It is hereby declared to be the policy of the government of the State of California to conserve the oil and gas resources of the State, to regulate and stabilize the production and distribution of petroleum oil and natural gas and the products thereof, to prevent waste thereof, and secure the benefits of said natural resources to the people of this and future generations.

That is virtually all of section 1.

Bowing to the will of the people, are we to understand that you feel now that the majority of the people of California disagree with the philosophy expressed in that declaration, and that the problem is adequately handled without any law on the subject?

Governor OLSON. I think, Mr. Chairman, that it is impossible to believe that the people are not in accord with that principle and that philosophy. I think that the people are not sufficiently informed on the subject, and that the voters, in case of doubt, vote "No." I think, too, that the division in the oil industry itself, confused the issue. Some were for and some against the adoption of this bill, and a very bitter fight was conducted. I think that that fight caused a confusion in the minds of the average voter as to whether it was a good or bad bill in and of itself.

The fear of a monopoly, and the fact that some of the major companies did not seem to be against, and in fact some of them seemed to be for the enactment of this bill, was one of the influences that determined the vote of many people. There has been a general public feeling that the Standard Oil Co. and its other major oil company associates and affiliates have dominated the oil industry of the State; dominated the price structure, and that the only opposition to that, the only counteracting element, was such opposition as independents could be strong enough to give.

Prices had been maintained at high levels over certain periods and then there has been gas price warfare, which resulted probably in selling below cost, through the fight to dominate the market.

And I believe it was generally asserted that this bill was supported by the Standard Oil Co., and if that assertion extended through the State at all, it would cause a great many people to vote no. A feeling or suspicion aroused by propaganda that monopolistic control of price structure might be imposed, that influenced a great many.

Of course I knew because my appointees would administer this bill that it would be administered perfectly equitably and fairly, and I believe there was enough power given in it to control the prices to the consumer.

I would like to have had an opportunity to show that. But I feel that misunderstanding caused confusion and a division in the industry itself, the kind of campaign of accusations and recriminations that occurred, caused many hundreds of thousands of voters to say "I am in doubt. I will vote no." I say in answer to your question, Mr. Chairman, that there is no question in my mind but that the people of this State as a whole who are not motivated by a special interest or a selfish purpose would be wholly in favor of the policy of that bill which you have read, and would subscribe to the principle and philosophy of recognizing that this great and now vital utility and resource of the country is one which cannot be left to control by

those seeking only their own selfish interest in its control; that it must ultimately be controlled through the people's government.

MR. COLE. Governor, some of the other members of the committee want to ask a question or two.

Governor OLSON. I will be glad to have them do so.

MR. COLE. Mr. Wolverton.

MR. WOLVERTON. Governor, in your opinion is there any essential difference between the situation in California than that which exists in the State of Texas where they have a control measure.

Governor OLSON. Well, I cannot conceive of any difference in the situation in one oil State and in another unless it is purely of a relative nature. The principle it would seem to me would apply equally to all oil-producing States.

MR. WOLVERTON. In view of the fact that Texas, which is the largest oil-producing State, and all of the others with the exception of California and Illinois have control statutes, would it not seem as if some of the fear that was spread at the last election was in fact without foundation?

Governor OLSON. I am quite sure they were without foundation and I think the fact that the people of the other oil States that have adopted such a measure would not change it, and are satisfied with that policy. That should be an answer to that theory.

Before this election came on we had a conference of Western Governors in San Francisco at which some of the Governors and representatives of some of the other oil-producing States were present. I made inquiry at that time as to the working of the oil and gas measures, and particularly as to what effect the adoption of that law had had in those States upon the price of the products to the consumer, and they assured me that the prices of products to the consumer had in some cases been lowered but in no instance raised; they had been substantially the same.

However, I might add this: Our bill went further than any other bill passed by any other State. It did not go quite as far as I wanted it to go. It could not have been passed if it had gone as far as I wanted it to go, but it did go further and did contemplate the thorough investigation of the whole subject with a view to more specific legislation and more specific power in the commission for the regulation of the entire industry, not stopping at production.

MR. WOLVERTON. Having in mind great interest in this National resource might it not seem as if there was some justification for the thought that some States may have adopted State legislation for fear that the Federal Government otherwise might adopt control legislation of oil as a great national resource in which people of all States are interested?

Governor OLSON. I think it is quite likely that that has influenced the adoption of State measures.

MR. WOLVERTON. Why is there a difference in the attitude of California from that of other States?

Governor OLSON. I have been trying to answer that question in my own mind. I will say this, that during the period of oil control under N. R. A. in California there was a great deal of dissension among many of those who are classified as independent producers. There were many complaints made at that time that the proration of production was not equitable and that it resulted in favor of the larger

companies having the large oil-land holdings and was discriminatory against the smaller producers. It so happened at that time I was in a small way connected with some producing wells in this county, and I recall then that the associate trustee with me who now is very actively opposed to any oil-control bill, State or Nation, brought to me complaints with regard to the proration of the wells that we were operating, and that indicated what I am speaking of, and in turn we took it up with the umpire and I found that the umpire gave hearings and as far as I recall made corrections.

But I mention that for this reason: That I believe opposition to Governmental control, especially proration of production, is inspired by those who resented it under N. R. A. and who even disregarded it and were indicted here for disregarding it under N. R. A. until that measure was held unconstitutional.

I believe that is one of the reasons.

Mr. WOLVERTON. It seems to me that the experience of other States with respect to legislation of the kind that was defeated in this State in November last in some measure should indicate either the necessity or the advisability of California having similar legislation. With other oil-producing States having State control statutes, and California running free so far as legislation is concerned, you can readily realize that there is an interest in what California does, not only by the consumers throughout the Nation but also by the other oil-producing States, and that it might lead eventually to a situation that would require Federal intervention by means of Federal legislation to control production in California.

Governor OLSON. I appreciate that, and I have assumed that that was the reason for the consideration of the bill now before your committee.

Of course, we do know that other oil-producing States which have oil-control laws—the commissions administering them, have shown their great interest in having California included in the oil-producing States that do have regulation. I can see that we are out in a rather different attitude than the other oil-producing States and are not by regulation cooperating with them, and the oil conservation that other States are attempting to accomplish.

Mr. WOLVERTON. Do you have any control over production in your State?

Governor OLSON. None whatever. The only statutes that are of a regulatory nature, are some specific statutes that have to do with methods of development, drilling wells, and so forth, and the matter of waste of gas in their production. Generally the law against waste of gas in production is intended to prevent its unavoidable waste in the production of oil. Action may be taken to restrain operations that will result in the prevention of avoidable waste of gas.

Mr. WOLVERTON. Is there a production limit in this State at the present time other than such as you have just indicated?

Governor OLSON. Production is not limited in this State at the present time at all.

Mr. WOLVERTON. What is the function of the committee of which you spoke a few moments ago, when you made reference to an umpire?

Governor OLSON. That was the S. R. A. umpire—the N. R. A. [Loud laughter.]

I did say that correctly in the first place.

Mr. WOLVERTON. Governor, I do not know what all of that laughter has reference to. Does it mean that the umpire was more popular than the usual umpire is.

Governor OLSON. I do not believe that that is it. I think the, real fact is that I misnamed "N. R. A." as "S. R. A." Of course S. R. A. is one of our great problems in California. I think that was the reason for the laughter. Mr. Pemberton was umpire for the N. R. A. administration, which was the committee that I spoke of.

Mr. WOLVERTON. I thought you mentioned that there was some committee here in California who sought to make allotments to the individual well owners as to the amount that could be produced.

Governor OLSON. I know what you mean. I do not know much about the industry's own attempt to regulate its own production. I understand that there has been for some time some effort to secure mutual agreements between the various producers to prorate production and as to regulatory conditions.

Mr. WOLVERTON. That would seem to indicate——

Governor OLSON. And to have an umpire to help.

Mr. WOLVERTON. That would seem to indicate that the industry believes in control of production.

Governor OLSON. Well, I am sure that they believe in it especially if they can do the controlling. Some seem to believe in it, even though a State government, free from domination of any group or interest in the business controlled it. Some of them were for it last year.

Mr. WOLVERTON. On what lawful theory could any group of businessmen get together, such as oil producers, and agree among themselves as to how much or how little of a commodity vital to the people of the Nation should be produced? In other words, it seems to me—and I do not know anything about California law—but it would seem to me that they would be on dangerous ground, if they did not have some legislation to authorize or to sustain them when they met together by common agreement to state how much should or should not be produced.

Governor OLSON. Well, I think there have been several Federal indictments rendered recently, and already now pending, that grew out of that very situation, on the ground that such agreements ran counter to the Federal antitrust law.

Mr. WOLVERTON. Oil is a great natural resource which has been spoken of as being irreplaceable, and which you have referred to as being vital to the interests of the people, and yet it would seem from what you have said that a group of men who are interested in producing that commodity meet together and agree between themselves as to how much each one shall produce, so that there would not be an oversupply, or so that it will stabilize the price—or for any other reason that they might have for doing it. It strikes me that it is coming pretty close to a serious situation as a violation of either State or Federal legislation that declares it to be unlawful to procure such an agreement.

Governor OLSON. It runs counter to both the State and Federal legislation to the extent they do accomplish control. It is, I believe, with an eye only to the price structure and their ultimate profit against anything else—over any other consideration. There is just quite a bit of human nature among some oil producers in California in that respect.

Mr. WOLVERTON. Human nature and its tendencies have frequently been the cause of the adoption of legislation to curb the natural tendencies that we have.

Governor OLSON. Yes; and when anyone suggests such methods, they are called socialistic, and we are told that we are interfering with a free enterprise and individual opportunity.

Mr. WOLVERTON. The principle that I am speaking of was adopted before you or I were ever in public life. I am speaking of the anti-trust laws. That is what I had in mind. You would not call that socialistic. They have been in existence for a long time, and have been accepted as founded upon a proper principle.

Governor OLSON. I have never seen any progressive method yet that was not called "socialistic." So I am not alarmed at that word at all. I have heard it so very much that it does not have any approbrium for me.

Mr. WOLVERTON. The oil-producing States are interested in this, but there are many other States that have an interest in this great subject. The State in which I live is not an oil-producing State; we are a consuming State. I think that all too frequently those who are in an oil-producing State, especially those in an official capacity, lose sight of the fact that there is an interest in this great natural resources beyond the State lines of the producing States.

Governor OLSON. I agree with you that the people of all of the other States which are not oil-producing States are interested, and particularly have an interest in our great natural resources, not only those of California, but those of all other States, upon which they must rely for their supply.

We supply the Western States, and it is of course as vital to them to have as prolonged a supply as possible and reasonable prices as it is for the people of the State of California.

Mr. WOLVERTON. Where all of the oil-producing States, with the exception of this State and Illinois, have adopted legislation, it seems to me that California by remaining out of it, is placing itself in a position that might necessitate legislation that otherwise would not be necessary if they took care of it themselves by adequate State legislation. The same would apply also to Illinois.

Governor OLSON. Well, I suppose that it may not have been realized by those that took a position against the enactment of a State bill how strongly the views expressed by you might be felt in the National Congress and by the national administration, but probably a result of the defeat of that bill will be one of the reasons that will persuade the enactment of a national act.

Mr. WOLVERTON. The industry seems to believe in production control but is not willing to place it in the hands of the State administration, and which would act in the interest of the public. The only objection to the legislation, which was defeated at the last election would seem to be to the administration of the act. After all, the question of administration is one that does not go to the core of the problem. The administration can be changed, and the administration can be bettered, or whatever is necessary can be done to provide a proper administration, but the principle, it seems to me, is the thing that all parties have a right to expect to be recognized.

Governor OLSON. Well, I have never thought it possible to have equitable administration, or administration in behalf of the general public, as well as a fair stabilization of the industry, without having

Government regulation, detached from any interest other than to serve the common cause; and I do not believe that the bill was defeated last year from the lack of the people's confidence in the administration of the act. I think the bill was defeated for the reasons that I have already stated.

Mr. WOLVERTON. That is all. Thank you.

Mr. KELLY. Governor, what percent of the oil produced in your State is consumed in California?

Governor OLSON. Well, I probably have seen the figures, but it might be quite inaccurate for me to give a guess or judgment from recollection. There are individuals here that can give you that very accurately.

Mr. KELLY. I am anxious to find out, however, of that which is not consumed in the State of California, which is produced here, what percent of that percentage is shipped daily to Japan.

Governor OLSON. I saw it in figures just the other day, as to the total shipments that had gone to Japan, in value of oil and gasoline, and it went into a tremendous figure. During the past 6 years I know there are those here that could accurately give it to you, and of course it is many hundreds of million dollars.

Mr. KELLY. We will get those figures later on, Governor. Thank you.

Mr. COLE. Any other questions?

Mr. CROSSER. Do I understand that if you could prevent wasting the supply in regard to shipments to foreign countries engaged in war, that that would meet your desire?

Governor OLSON. It would prevent waste.

Mr. CROSSER. If it would prevent waste alone; is that all you are concerned about?

Governor OLSON. No; that is not all that I am concerned in. I am concerned with the stabilizing of the natural resources so as not only to conserve them and prevent waste in production, but to control the price structure so that the public may have the benefit of its natural resources instead of them being so handled that during the temporary period of this generation that inordinate profits regardless of waste, may be realized by those engaged in the industry.

Mr. COLE. Thank you very much Governor.

Is John Smith in the room?

Mr. HAROLD MORTON. I am secretary of that association.

Mr. COLE. What is your name?

Mr. MORTON. Harold Morton. Mr. Smith was called away.

Mr. COLE. All right, gentlemen, let us have order, please. For the benefit of those in the audience appearing before the committee, it is the purpose of the committee to hold sessions tonight, tomorrow morning and tomorrow afternoon, and, if necessary, tomorrow night, Thursday morning, and then if necessary to conclude, a session will be held Thursday night.

The testimony will be written up, one copy left here for witnesses to revise their remarks. The original will be taken back with the committee. It will not be printed in bound form until the witnesses have a reasonable time to correct their testimony.

Statements which witnesses have prepared of any considerable length might be filed with the proceedings and a shorter explanatory

paper read to the committee. I think that all will be subjected to some questioning by the members of the committee.

At this point I place in the record a telegram addressed to Chairman Lea from our colleague from California, Hon. Harry R. Shepard, and then a letter dated January 12 last addressed to Chairman Lea from Representative Izac of this State. Mr. Reporter, they go in at this point. Also a telegram to Chairman Lea and me from Congressman A. J. Elliott of this State. I offer at this point the two telegrams and the letter.

The Independent Petroleum Consumers Association requested time in the arrangements I made with Mr. John H. Smith, the president of that group. I understand Mr. Smith is not present but Mr. Harold C. Morton, secretary of the association, is. We will hear you at this time, Mr. Morton.

STATEMENT OF HAROLD C. MORTON

Mr. COLE. Mr. Morton, would you state your full name?

Mr. MORTON. Yes, I will.

Mr. COLE. And your association with this problem.

Mr. MORTON. My name is Harold Morton. I am a life-long resident of this community. It so happens that I am a director and secretary of this association known as the Independent Petroleum and Consumers Association, an organization composed among others of what we call independent producers and refiners. I am also speaking here for the California Stripper Well Association. It happens I am a member of the American Petroleum Institute. I am an independent oil producer in my own rights, so to speak, and now lastly but I hope not least I am a member of the Bar of the State of California and have been for some twenty odd years past. My practice has largely appertained to the oil industry for many years past. However, gentlemen, I do not come here in what might be called a professional capacity. I am here at my own urging and that of my friends and associates in this industry to help you discuss a common problem. I prefer that you consider me here as an oil producer rather than a lawyer although one of your committee suggested a possible legal problem which I would be very glad to give my brief views on at the end of the matter. One of the questions directed to the Governor. But I simply call your attention to the fact I am not here in a professional capacity or in the employ of anyone to present their views on this matter.

Mr. COLE. Mr. Holmes.

Mr. HOLMES. Are consumers a part of your organization?

Mr. MORTON. Consumers are vitally interested in any measure like the defeated Atkinson bill. When that came up people were interested who were people only interested in the producing side of the industry, principally of course those active in it are those in the industry itself.

Mr. COLE. Mr. Morton, may I ask you, Do you prefer to conclude your statement and then answer questions or interrupt you at any time?

Mr. MORTON. Interruptions, being a member of the bar, will not bother me of course. I would frankly prefer, unless it pertains specifically to a certain point that I be allowed to conclude and then I

will throw myself wide open for any inquiry, although if any inquiry occurs I will be happy to answer it.

It will be my purpose to discuss conditions in California and our own conservation laws, particularly to the view of necessity for legislation such as we have before us today in this so-called Cole bill, together with the attitude and feelings of people of the State of California as well as those in the industry as we understand it toward such legislation. Some subjects upon which I will touch I will be brief on for the reason I am informed other witnesses will follow me who will be in a position to discuss them in more detail and perhaps more intelligently. But we are going to try, gentlemen, to endeavor to protect your committee from repetition as far as possible.

Gentlemen, at the outset I would like to call your attention to the fact that California does have conservation laws. Uninformed persons, and I do not use that disrespectfully, frequently speak of California as being without conservation laws. In magazine articles and what not you see references to that, and a great many people seem to be under the impression that California is the black sheep in the oil family.

Mr. COLE. Mr. Morton, may I interrupt you a moment?

Mr. MORTON. Yes, sir.

Mr. COLE. If you will permit an interruption for a moment I would like to ask the clerk to read the telegrams from Congressmen Sheppard and Elliott and the letter from Congressman Izac, to which I just referred.

Mr. MORTON. Very well. While you are doing that I will arrange some of my papers.

The CLERK. A letter from Ed. V. Izac, dated January 12, 1940:

HON. CLARENCE F. LEA,

*Chairman, Interstate and Foreign Commerce Committee,
House of Representatives, Washington, D. C.*

DEAR MR. CHAIRMAN: Upon the eve of the departure of the Interstate and Foreign Commerce Committee of the House of Representatives from Washington to hold hearings on H. R. 7372 in the State of California, I wish to make known to the committee my feelings regarding this bill.

The people of California hate monopoly and they are of the opinion that a monopoly composed of the major oil companies exists to the detriment of the people of the United States. They have just recently registered their opposition to bills of this character which, although purporting to be measures of conservation, are likely in their application to give the oil monopoly a more rigid control adverse to the best interests of the oil-consuming public and the independent element in the industry.

The people of my district especially, by an overwhelming majority, have refused to sanction such a measure and therefore if I am to faithfully represent them, I must consider their wishes. Accordingly, I shall oppose this or any other measure which promises to deliver into the hands of the monopolists a more complete control of an industry already suffering from a partial control so detrimental to the people of the country. I am asking if you will kindly incorporate this letter as a part of the record in the hearings on the bill in question, H. R. 7372, Seventy-sixth Congress.

I am,

Sincerely yours,

ED. V. IZAC,
Member of Congress Twentieth District, California.

A telegram from A. J. Elliott to Hon. Clarence F. Lea:

HON. CLARENCE F. LEA,

Committee of Interstate and Foreign Commerce, Los Angeles, Calif.:

I believe H. R. 7372, the so-called Federal Oil Conservation Act on which your honorable committee is now holding hearings at Los Angeles to be a false conserva-

tion measure prejudicial to the interests of the people of California and particularly to constituents of my district who defeated similar State legislation last November by an overwhelming vote. Further, I regard the proposed measure as likely to lead to a dangerous political bureaucracy inimical to representative government. Accordingly I request my objection to the bill read into the record at Los Angeles. With my highest respect and esteem.

A. J. ELLIOTT.

A telegram from Harry R. Sheppard, Member of Congress:

HON. CLARENCE LEA,

Chairman, Foreign Commerce Committee, Los Angeles, Calif.:

GENTLEMEN: My analysis of H. R. 7372 upon which you are now holding hearings definitely indicates that if oil conservation is the basis upon which this bill is to be enacted that from a conservation point of view the provisions of this bill will not achieve that end. The present regulations as they are now being operated in the State of California are adequate. In my opinion H. R. 7372 is fundamentally the same as the Atkinson Act, the recent State proposal which was so overwhelmingly defeated by the voters of California. In my congressional district my constituents registered their protest against this kind of legislation by a vote of 42,379 for and 118,403 against, which is in my opinion a definite expression of their attitude and I feel that it is my duty to report the desires, as expressed by the constituents of my district. Consequently I wish to enter my protest to the enactment of H. R. 7372 and respectfully request your committee to read this wire into the record while in session at Los Angeles.

HARRY R. SHEPPARD, M. C.

The CLERK. That is all, Mr. Chairman.

Mr. COLE. All right, Mr. Morton.

Mr. MORTON. As I was stating, gentlemen, we do not believe that we are entitled to be considered the one spoiled apple in the barrel, or the black sheep of the family, although some of the people who have studied this situation seem to regard us as the problem child.

Mr. Chairman, I have been furnished with a copy of a speech delivered by you last November before the American Petroleum Institute, and with your permission I would like to use a paragraph of that to better illustrate what I have in mind here. I am sure that you will not object to it. In the course of your remarks, as the copy was furnished to me, after making some mention about the Texas Railroad Commission, which governs the oil production in that State, and the sincerity with which they regarded estimates of the Bureau of Mines, you stated as follows [reading]:

I mention this not to criticize the activity of the Texas commission in seeking to raise the production allowable for that State, but solely for the purpose of showing the confidence the regulatory commission of that great State has in the Bureau of Mines.

Looking at some other figures presented to the committee the situation is not at all the same. In the first place the decision by the people of the State of California to leave its petroleum resources without the support of law similar to that found advisable and necessary in practically all other great oil-producing States, creates a problem on the Pacific coast of real concern.

I might state in answer to the question a few moments ago by one of you gentlemen, our distinguished Governor stated that there was no restriction on production in California. But after reminding him and almost prodding him, you gentlemen did bring out something about our voluntary conservation system, which during this meeting will be thoroughly described to you. But from your statement, Mr. Chairman, I gathered you were under the impression, and perhaps the committee is under the impression, that in California Bureau of Mines figures are not regarded. I notice that Secretary Ickes, on November 10 last, in appearing before your committee, made reference to the fact

that California for a second time had defeated a bill for the conservation of oil, and I am quoting now:

That is pretty good notice that we cannot expect much from the largest oil-producing State in the country acting on its volition—

I take it that there must have been a misstatement, because we are only the second largest—

and meanwhile the waste goes on, and the waste continues to go on.

So that the Secretary's statement, gentlemen, in all sincerity I say to you that such statements and such assumptions are entirely without foundation. And if you will bear with me I will endeavor to give to you some of the facts pertaining to our voluntary State conservation proration and curtailment together with the conservation and the figures as to what it runs to in this State of ours. It is not perfect, gentlemen, but in comparison, we believe, when you leave this State rather than regard us as a problem child it may occur to you that perhaps some of the other States may profit by our example. It is true that we do not have an oil-control bill placing the oil industry in the hands of commissioners or a commission, and subject to politics. We do not have a single commissioner or group of them as they have in Texas.

I think Mr. Secretary Ickes, when he said, "We defeated a conservation law," was mistaken. We in California, many of us, feel that we did not defeat a conservation law. We defeated a control statute and an attempt to place the industry—the oil industry in California—in the hands of three political commissioners appointed by the Governor without any restriction on that appointment, or tenure of office. The tenure of office would be—would have been, gentlemen—solely at the pleasure of the Governor. Fortunately, we believe, the people of the State of California have the referendum, and the referendum was invoked after the bill was high-pressured through the legislature with the strange combination of the Standard Oil Co. and the C. I. O. and our liberal Governor. And a campaign to adopt the bill which I will only refer to briefly on a few points, failed, despite the support of the President, the ex-President, the Secretary of the Navy, the Secretary of the Interior, the Governor, the C. I. O., the Standard Oil Co., and others—it was decisively defeated.

We have in this State, gentlemen, a law, which is Act No. 4916 of the California General Laws. Some of you may be surprised to know that it is entitled "Oil and gas conservation law." This law has been in effect for many years, and from time to time it has been amended. Briefly this law appoints an oil and gas supervisor, and it is the duty of that supervisor to have charge and supervision of oil-drilling operation, the maintenance of wells, and with respect to possible water encroachment, and so forth. Provisions are made therein that a well is not drilled until he approves the location, and the essential drilling operations with respect to casing, and the cementing thereof, and production tests, whether this is done by a supervisor or by a deputy; there are elaborate provisions therein by which you or I, if we are producers, and we have a neighbor who is being negligent, we may file a complaint against that neighbor for waste, underground waste, alleged to be occasioned, and that may be corrected.

Furthermore, one of the most important provisions of our code is section 8-B, that prohibits unreasonable waste of natural gas [reading]:

SEC. 8-b. The unreasonable waste of natural gas by the act, omission, sufferance, or insistence of the lessor, lessee, or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release, or escape of natural gas into the air shall be prima facie evidence of unreasonable waste.

And that is declared to be opposed to the public interest and is expressly prohibited and declared to be a violation, and the act further provides that the flowing of the natural gas into the air shall be prima facie evidence of unreasonable waste, and so forth.

In recent proceedings we have seen effectual enforcement in some cases, and in other cases unfortunately in the past the law has not been enforced as strictly as it should have been.

A further discussion on the subject, however, of gas wastage, will be made. At this particular point I do not want to spend too much time on it.

There are provisions in this act to which I referred relating to agreement between the operators with the approval of the supervisor. There is nothing, however, in the bill which appoints any political commissioner or man to say to you or to me how much oil can be produced from our particular well or our particular leases.

We also have a regulation respecting the spacing of wells, adopted in 1931, which prohibits drilling within certain districts within certain boundaries, and so forth, about which you will be told before you leave. However, in new fields that spacing is much greater than the law provides for.

We also have a statute making it a crime punishable by fine and imprisonment to permit natural gas to be wastefully or unnecessarily blown into the atmosphere. I will be very glad if the committee cares to have me do so to give you those references. And I will be pleased to prepare a digest of any or all of them and hand them to you or if you think they will be helpful to you.

Mr. Cole you made reference to section 1 of the Atkinson bill. I was interested in opposing the passing of that bill before the legislature and before the people, and had every opportunity to observe the campaign and I do not see how anything in it could be contrary to this section 1 thereof. That was not the issue before the people and could not be. I wish to make the point that I want to bring this matter in here to show that oil control legislation is not necessary in California.

We have voluntary conservation under our present laws, and through the cooperation of our industry it is a success. Statistics, of course, in a matter like this, are very essential. I will make this as brief as I can and will try, if it is possible to do so, to make them interesting to the committee.

Potential production, gentlemen, in California, has been variously estimated, but the very last estimate I read of potential oil production for this State of ours was 2,486,000 barrels. Actual production during the past year has been a little above 600,000 barrels daily.

I have here the exact figures on that subject and they have been—I am not the author of them, but I had copies prepared under my

direction, of a chart which reflects those figures. The copy which I will hand to your Secretary for the record has the figures written down as well as a copy of the graph.

I think, gentlemen, you will find that this little graph I have handed you will be somewhat helpful in understanding our operations in California. You will notice in the graph, that the first line across the top is a straight line, and then small squares above and then rectangular sections below, and with the title, "Millions of Barrels," to the left. That shows the withdrawals from storage to this date in the past year. You will observe in the first three tiers of the graph the additions to storage and withdrawals from storage, the remaining months of the year which are substantial withdrawals from storage.

Below that there are two perpendicular columns side by side for each month, both of which come to a mark of about 600,000 on the side of the page. The one that looks something like a barber pole is what we call the allotment for the month in California. The one alongside of that is the actual production for the month.

I might state that all of these figures are based on authentic data either from the United States Bureau of Mines or from the Oil Umpire, and I mean by that from our own Oil Umpire's office where these records are religiously kept.

You will notice that there is slight overproduction in comparison to allotment each month. In terms of percentage, that is less than 3 percent for the year. By considering that with the storage indicated at the top, you can readily see that the allotment was not equal to actual demand because, in addition to some slight excess of production, we also have withdrawals from storage.

I might state to you gentlemen at this point that in the past year and a half or so I believe there have been some 9 or 10 new major discoveries in California, oil fields with great potential.

In 1938 the total production for California in barrels of oil was 249,125,000. In 1939 the production was 223,645,000, some 26,000,000 barrels less in 1939 than in 1938, and I believe that would work out at about 75,000 barrels per day less, which is a substantial amount.

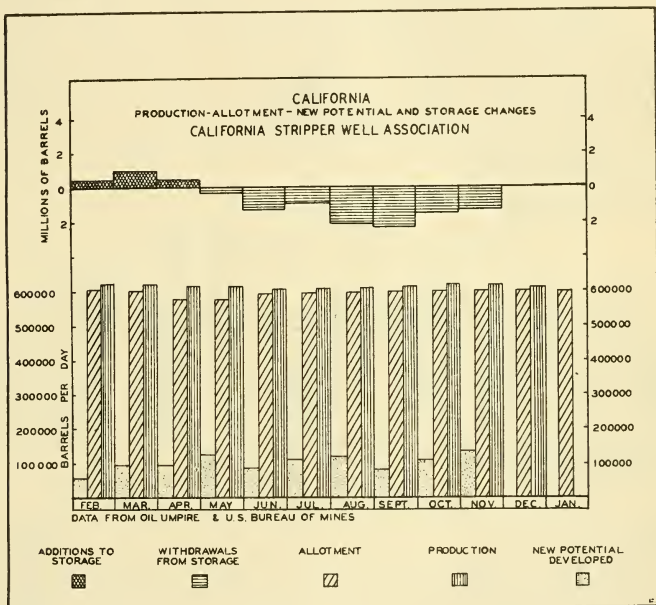
Now, gentlemen, that decrease was not due to depletion of our fields, and to emphasize that on this little graph at the bottom, paralleling the two columns regarding which I spoke, you will see a dotted space, which is placed there to give you the amount of new potential each month, and the point I want to bring home is that we have met the threat of potential production, ever increasing, and not only met it, but have curbed it and substantially reduced our production during the period under discussion here.

You will have other figures given to you and perhaps these hearings more or less become a jumble of figures, and one can only understand them by sitting down and coolly analyzing them, but I say, as far as I have gone, that in the face of our potential production and our actual production, and in respect to our allotment, you will find that it is approximately the same as the Bureau of Mines' estimate.

The Bureau of Mines' estimates are highly regarded here by me personally, and I believe by practically everyone in the oil industry, and this ultimate figure, regarding which you will hear more, you will find comes very close to the estimate of the Bureau of Mines.

Now, I am not quite expert enough to tell you whether storage in this territory as a whole is too great or too small. You have had

some figures before you in your hearing and I notice many discrepancies and you will notice many more, but I notice at page 228 of your transcript heretofore the statement was made, "The indicated demand for crude petroleum in California for 1938 was 240,053,000 barrels, an average of 658,000 barrels per day. On this basis the stocks of refinable crude oil in California (34,342,000 barrels), on December 13, 1938, were adequate to supply 52 days' demand. The California district has the fewest number of days' supply in storage of any of the major oil-producing districts." And from the figures you have on this graph you will see that storage has been reduced since that period of time.



So I say that as far as storage is concerned it must be that California cannot be said to be out of line.

Mr. Chairman, may I make the offer of this graph together with the tabulation showing the allotment of barrels daily in California as fixed by the Oil Administrator; offer those for the record?

Mr. COLE. Yes; you may.

Mr. MORTON. Thank you. Gentlemen, under the N. R. A. as you of course know, we had Federal control of production here in California, and I have had prepared here a schedule showing the allotments during that period of time as compared to the actual production during that period of time, the production figures being from the Bureau of Mines, and the statement showing the excess production each month, and the percentage of allotment to production, so that a comparison

may be made between our operation, for example, last year, under our voluntary conservation system, and under control under the N. R. A. The statement shows substantially, shall I say, the same compliance with allotment, in other words, a 2 or 3 percent overage, just as we had last year.

And with your consent, Mr. Chairman, I would like to offer this tabulation to the end that it may appear a part of your record.

(The statement referred to is as follows:)

Stock increases or decreases in the Pacific Coast territory 1939 ¹

Month	Thousands of barrels		Month	Thousands of barrels	
	Increase	Decrease		Increase	Decrease
January.....	2,479		July.....		1,078
February.....	522		August.....		2,309
March.....	1,046		September.....		2,176
April.....	540		October.....		1,499
May.....		331	November.....		1,234
June.....		1,392	December ²		

¹ From U. S. Bureau of Mines.

² Not yet available.

Net decrease of stocks for 11 months—5,432.

California production and State quota 1939

Month	State quota	Barrels daily production ¹	Percent	Month	State quota	Barrels daily production ¹	Percent
January.....	605,000	619,415	0.975	July.....	595,000	605,893	0.982
February.....	605,000	617,677	.977	August.....	598,300	609,324	.982
March.....	602,000	620,123	.9707	September.....	598,300	613,465	.975
April.....	575,000	612,649	.938	October.....	598,300	612,206	.977
May.....	575,000	614,015	.936	November.....	599,000	609,461	.982
June.....	590,000	604,100	.976	December.....	599,000	² 611,845	.979

¹ From California Oil Umpire.

² Preliminary estimate.

Estimated new potential developed in California 1939

Month:	New potential
January.....	82,675
February.....	50,475
March.....	92,450
April.....	92,525
May.....	124,000
June.....	94,425
July.....	109,825
August.....	119,450
September.....	79,250
October.....	105,850
November.....	130,325
December ¹	
Total (11 months).....	1,081,250

¹ Not yet available.

Gentlemen, in my next remarks I offer no criticism of our sister State of Texas, but I cannot but believe that a glance at a chart for the State of Texas during the same period as the chart I gave you for the State of California would be of some interest particularly in that it gives a comparison of some matters of an oil-control State, let us say, and one which has its own voluntary conservation program. Here as in the other we have the best estimate we can make of the

additions to storage and withdrawals of crude oil. By the way, the storage here is crude oil, and the storage on the California chart is of all products transposed back into barrels of oil. And here we have a comparison of Texas allotment by its railroad commission, or its allowable and the actual production. You will notice considerable fluctuation in a period of time there, particularly in the month of August when it is a matter of common knowledge that some crisis arose in the Mid-Continent which called for the shutting down of wells in that area.

Now, gentlemen, in the recent campaign over the Atkinson control bill many of our friends in Texas undoubtedly meaning well, and we do not question their motives at all and nothing that I say is to be so construed, endeavored in many ways to assist the group in favor of our control bill to have it adopted. The National Stripper Well Association, Governors of some of those States, members of the Texas Railroad Commission were quoted as thinking our bill should be adopted here. I believe, gentlemen, that the people of California and the oil industry of California preferred our voluntary conservation program which I believe you will find is much steadier, although we do not claim it is perfect yet, than the situation which confronted Texas.

I would like to ask if I might, Mr. Chairman, that this chart appear in your record so that my testimony will be understandable.

Mr. COLE. At this point?

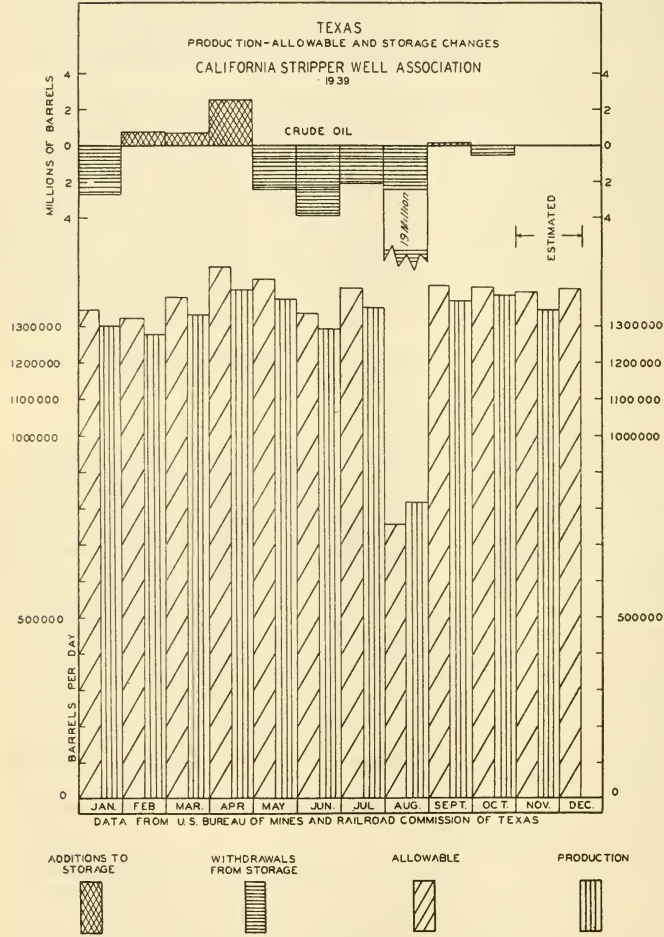
Mr. MORTON. Yes, thank you.

Mr. MORTON. Gentlemen, by something of a coincidence a report on the subject of regulation of oil and gas in California was prepared in the latter part of 1938 by the California State Planning Board. This board was composed of a group of prominent citizens including the then director of finance, the director of public works, the director of resources, and other names who appear here. This report was concluded in the latter part of 1938. It is entitled "Regulation of oil and gas in California." This report, gentlemen, was not prepared with respect to the Atkinson oil control bill which was subsequently introduced into the legislature, or any other control bill. There was then no bill in the house or any group in this State. It was prepared under circumstances which I believe make it important to your hearing, as the foreword to the report states, which I now read, that it is prepared as a part of its Nation-wide energy resources survey.

The National Resources Committee asked the California State Planning Board to prepare a special report on petroleum and natural gas production-control and conservation measures.

And it was prepared then, gentlemen, as part of the National Resources Committee study.

The report is an important one, and if I may be permitted, gentlemen, I would like to compare it to a report such as must issue from a group, as you gentlemen are, undoubtedly from different walks of life, and even from your questions thus far, I believe intelligent, and some of you knowing more and some less about the subject under discussion. As I say I am not going to read it all but I am going to ask your permission to make it part of your record, and to first read some of their statements which are very short. The part I read is very short. They review our history; they review our statutes; they



review what California has been confronted with, and then under the heading "Effectiveness of Regulation" is this statement:

The effectiveness of oil and gas regulation may be judged by three factors—(1) amount of needless waste, (2) characteristics of the market-production ratio, and (3) simplicity of the enforcing machinery.

Except for a brief period under the National Industrial Recovery Administration, the proration of oil in California has been on a voluntary basis. Regulation has been conducted with a minimum of politics, complication, legislation, court action, and expense.

And then follows quotations from people whose names are given on the subject to the effect that this has been successful, and then this conclusion:

Clearly oil production control has been effective not only in preventing an actual increase such as might have seemed warranted by the record breaking national demand in 1936, but also in keeping relative production far below the 1929 level.

And the last few words of the conclusion are as follows:

California has a substantial record of accomplishment in the field of oil and gas conservation. It is important that this good work continue, and that it be strengthened and improved at every opportunity. Only by constant vigilance can oil fields be kept active for a maximum period of time, labor get steady employment, producers enjoy a satisfactory long-range price structure, and the State have both a sustained income and a dependable fuel supply.

This brief review of oil and gas regulation in California suggests that three factors seem to merit special attention. These are:

- (1) Further reduction of gas wastage.
- (2) Maintenance of a reasonable oil production-demand ratio.
- (3) Unit operation of oil and gas fields.

And I say to you gentlemen that with those recommendations I heartily concur, and I believe the vast majority of those in the oil industry in California likewise concur.

Mr. Chairman, may I make this a part of your record? It is not too long or cumbersome and I know as you have occasion in the future to study it you will find it of interest. It was prepared by the State body for and apparently used in connection with the movement which brought about the resolution which caused your committee to make this investigation.

(The matter referred to is as follows:)

THE REGULATION OF OIL AND GAS IN CALIFORNIA—CALIFORNIA STATE PLANNING BOARD 1938

CALIFORNIA STATE PLANNING BOARD

Members

Harrold English, Los Angeles, chairman; A. E. Stockburger, director of finance, secretary; Robert Easley, Antioch; William E. Harper, San Diego; Louise Ward Watkins, Pasadena; Earl Lee Kelly, director of public works; George D. Nordenholt, director of natural resources.

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FOREWORD

As a part of its Nation-wide energy resources survey, the National Resources Committee asked the California State Planning Board to prepare a special report on petroleum and natural gas production control and conservation measures.

Oil and gas are of particular importance in California. To a considerable degree our prosperity and well-being depend both on the sustained production of our oil and gas fields, and on the economic status of producing and distributing agencies. The State Planning Board, therefore, is pleased to present this brief survey concerning the regulation of oil and gas in California.

Published legal, statistical, and other data were freely consulted during the preparation of this report. In addition, special acknowledgment is made of the generous cooperation received from Mr. J. R. Pemberton, oil umpire for the central committee of California Oil Producers; Mr. R. D. Bush, State oil and gas supervisor; and Mr. Claude C. Brown, then consulting chief engineer for the California Railroad Commission.

INTRODUCTION

California, Texas, and Oklahoma are the great oil- and gas-producing States of the Union. Until about 10 years ago, California enjoyed undisputed leadership in oil production, and was a strong competitor for first place in natural gas. Since the depression, however, Texas has assumed and held this coveted position.

The commercial production of oil and gas in California is localized within the southern half of the State. Three areas—the Los Angeles Basin, the coastal district, and the southern San Joaquin Valley—have virtually all the important fields. Refineries are widely scattered throughout the various producing regions, but those in metropolitan Los Angeles and around San Francisco Bay have by far the greatest capacities.

No pipe lines carry California oil or gas outside the State. Interstate and foreign shipments of oil are handled either by tank cars or by steamships. Extensive ocean terminals and shipside storage facilities are maintained at Los Angeles Harbor and at several San Francisco Bay points. Tanker loading stations also have been built at El Segundo, Ventura, Esteros Bay, and a number of other places along the southern California coast.

From several points of view California is unique among American oil and gas regions. Isolated by hundreds of miles and the great Rocky Mountains from midwestern and eastern oil fields and markets, California is a comparatively independent, self-contained unit of the industry. Despite this situation, national trends in prices and production are promptly reflected in California. Conservation, regulation, and production control are of Nation-wide importance and, therefore, vital to California.

NEED FOR REGULATION

California's great oil and gas fields have been developed within the last two decades, many of the fields being areas intensively utilized for urban and agricultural purposes. As a result, exploitation frequently has been a frenzied attempt for each landowner to get his share from the common pool. Huntington Beach, with its "town lot" drilling, is a typical example. In addition to this general tendency for overdevelopment and consequent overproduction, certain other factors contribute to the need for regulation.

Oil-gas relationship.—In California both oil and gas commonly are found in the same structures. Generally the gas is under such high pressure that, for a time at least, oil flows without pumping, and vast quantities of gas are produced. This is not always desirable. More oil than the market can absorb may pour from the wells, while gas for which there is no demand blows into the air.

Oil-water problem.—California's underground water resources are of major importance both to urban and agricultural areas. The more populous regions are semiarid or arid with few perennial streams. Thousands of city residents and thousands of acres of valuable irrigated farm land depend on water obtained from wells. But a well merely is a hole in the ground which pierces all strata it encounters. Sometimes a well produces water, sometimes oil and gas, sometimes both water and oil, and sometimes nothing. All too frequently oil wells penetrate one or more aquifers on their way to the deep oil sands. Unless special care is taken, the water may be wasted or contaminated with petroleum. Either result means tragedy when that water is the sole support for activities of the surrounding countryside. In California water is even more important than oil.

Then, too, the introduction of water into oil sands is a serious matter. Carelessness in this regard may ruin a promising oil or gas field.

These threats to an already inadequate water supply and to the oil and gas reserves of the State have prompted active interest in measures for regulating methods of oil-well drilling and operation.

Business conditions.—The demand for oil and gas, like that for other commodities, depends to a considerable degree on general business conditions. Except for 1935 and 1936, the consumption of petroleum in the United States has been substantially below the 1929 level. Then, too, during the past 9 years the development of many new fields has increased the industry's productive capacity. Such a combination of expanding production and shrinking markets leads to chaos. Under these circumstances some form of production control is essential.

Marketing difficulties.—California petroleum enjoys a virtual monopoly of the California, Oregon, Washington, British Columbia, Alaska, and Hawaii markets. It also has a strong competitive position west of the Rocky Mountains. This territory is of vast extent, but has a relatively small population and only a moderate demand for oil. Several other regions have provided major outlets for California petroleum products. During the past 20 years millions of barrels of crude, fuel oil, gasoline, and kerosene have moved by tanker to the east coast, northwestern Europe, and eastern Asia. At some time oil from this State has reached practically every large seaport in the commercial world.

Within recent years several marketing difficulties—competition, a decline in ship bunkering, and rising transportation costs—have beset California oil producers.

Vigorous exploitation of great new Texas fields has gone far toward eliminating the Atlantic coast and European markets. In the western Pacific Basin, oil from the Dutch East Indies and Bahrein Island constitutes an ever greater threat to California exporters. New pipe lines carry Midwestern and Southern oil and gas direct to many centers in the northeastern quarter of the country. Panama Canal tolls and rising tanker rates increase California's already serious handicaps. Bunker oil for ships, long a major market for California fuel oil, is becoming less and less important due to strikes and withdrawal of boats, notably those of the Panama Pacific, Grace, and Dollar Lines.

Except for the presence of the entire American fleet in California waters, and the Sino-Japanese War, these marketing problems would be of even greater concern. Once again, the need for regulation and production control is self-evident.

REGULATORY MEASURES

A variety of regulatory measures designed to keep California's oil and gas industry on a solid foundation have been put into effect by both public and private agencies. The more significant of these measures are here described.

State laws.—Since 1909 the State of California has had specific laws governing various aspects of petroleum and natural-gas production and distribution.

Act 4916, Statutes of 1915, amended by Statutes of 1917, 1919, 1921, 1929, 1931, 1933, and 1937, known as the oil and gas conservation law, is an act to protect the natural resources of water, petroleum, and natural gas from damage, waste, and destruction. It provides for the creation of a division in the department of natural resources for the prevention of such damage, waste, and destruction; for the appointment of a State oil and gas supervisor and his staff, and fixes their duties and responsibilities; for the inspection of petroleum and gas wells; requires all well operators to render certain reports; permits and authorizes agreements in the interest of conservation; provides for suits by the director of the department of natural resources in the name of the people of the State of California; creates a fund for the purposes of the act; provides for assessment and collection of charges to be paid by operators; and provides for bonds required of drillers of oil and gas wells.

For convenience in presentation, the major provisions of this and other State laws are discussed by topics rather than by statutes.

(1) *Wastage of gas.*—The following analysis of the control of gas wastage is taken from a letter by Claude C. Brown, California Railroad Commission, dated August 16, 1938.

Under Act 2954 of the Statutes of 1911, known as the gas-wastage law, the unnecessary wasting of natural gas to the atmosphere is prohibited in these words:

"Waste prohibited. All persons, firms, corporations, and associations are hereby prohibited from willfully permitting any natural gas wastefully to escape into the atmosphere."

The same brief act also requires the capping, upon abandonment of any well from which natural gas flows, and provides for penalties in case of violation.

In 1929, many sections were added to Act 4916, among which are the following: "Unreasonable waste unlawful. The unreasonable waste of natural gas by the act, omission, sufferance, or insistence of the lessor, lessee, or operator of any land containing oil or gas or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release, or escape of the natural gas into the air shall be prima facie evidence of unreasonable waste."

"Procedure upon complaint of waste. Upon complaint being made to the director of natural resources by any person operating in any oil field that there is occurring or threatened an unreasonable waste of gas in any field or fields and a petition is filed with said director requesting that a hearing be held to consider whether such waste is occurring or threatened, and it appearing to the director of natural resources that there is probable cause for such complaint, he shall order the State oil and gas supervisor to hold such a hearing and to fix a time and place therefor; such a hearing may also be ordered by the said director on the application of the State oil and gas supervisor. * * * Upon the conclusion of said hearing the oil and gas supervisor shall determine whether or not there is an unreasonable waste of gas in said field, in existence or threatened, and shall also determine the extent to which the waste of gas therein occurring or threatened is unreasonable. If it shall appear that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power, or other industrial purpose and that there is sufficient gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells and that there are adequate gas pipe-line connections between such other wells and the place of utilization of such gas, the State oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field. If the waste of gas be found unreasonable an order shall be made directing that such unreasonable waste of gas shall be discontinued or refrained from to the extent stated in said order. The sale or delivery of gas to another by a lessor, lessee, or operator shall be no defense, excuse, or reason from any lessor, lessee, or operator disobeying an order of the State oil and gas supervisor directing the discontinuance or curtailment of the production of the well or wells from which said gas is being produced when such gas is being unreasonably wasted by such buyer or by the person to whom deliveries are being made. * * *"

Whenever it appears to the director of the department that gas is being wasted, he may institute or have proceedings instituted in the name of the people of the State of California to enjoin such unreasonable waste, in the superior court of the county in which the waste is taking place.

In the year 1929, there was prepared a report calling to the California Railroad Commission's attention the tremendous wastage of natural gas then taking place in the California fields. The commission transmitted said report to the Governor, who shortly thereafter appointed a conservation committee, consisting of operators and State officials, to study the problem.

On May 26, 1929, the legislature passed legislation amending Act 4916, as noted above, declared the unreasonable waste of natural gas unlawful, and provided for the act having immediate effect as an emergency measure. These amendments redefine the property rights to oil and gas in accordance with the correlative right rules heretofore confined to the law of waters and remove oil and gas production from the antitrust laws.

After numerous conferences in an effort to induce the operators in the Santa Fe Springs field (one of the largest wasters of gas) to reach some agreement, an action was filed on September 11, 1929, in the Superior Court of Los Angeles County, for an injunction restraining such waste. On October 21, 1929, the Wilshire Oil group obtained an alternative writ of prohibition so that the Superior Court could no longer proceed until the matter of parties was determined. The Supreme Court of California on January 17, 1930, denied the writ of prohibition and allowed the action to proceed without waiting the thirty days before the order came to trial.

The Superior Court of Los Angeles proceeded with the taking of testimony on the application for preliminary injunction, and on March 12, 1930, overruled the demurrers and denied the motions to strike from the complaint made by the defendants. This was followed by the granting of the preliminary injunction on March 19, 1930, fixing the allowed production of gas from the field at approximately 285,000 M cubic feet per day, distributed on the basis of a formation gas-oil ratio of 1,250 feet and an average production ratio of 2,500 cubic feet of gas to a barrel of oil, with some adjustments in favor of properties high up on the structure. The basis of the order was to confine blow to the air to a quantity less than 100,000 M cubic feet per day, and reduced both gas and oil production by about one-half. This order was modified on March 28, increasing the allowable to approximately 300,000 M cubic feet per day to permit production from some leases disadvantageously located, and on May 2 was again modified to permit certain town lot leases to combine, and prohibiting any production at a gas-oil ratio in excess of 10,000 cubic feet to a barrel of oil. In the meantime on March 29, the Star Petroleum Company and associates had appealed from the injunction, and the Bandini Oil Company had obtained an alternative writ of prohibition from the District Court of Appeal challenging the jurisdiction of the court to make any order on the ground that the statute was unconstitutional. This writ was denied in the district court of appeals by decision and order on November 29, 1930, and hearing denied in the State Supreme Court on January 26, 1931. These rulings were sustained in the United States Supreme Court on November 21, 1931.

The gas wastage had continued throughout the year 1930, but by the time the jurisdiction of the court and the constitutionality of the act were definitely established, the wastage had been decreased. The remittitur restoring the jurisdiction of the Superior Court at Los Angeles was received from the United States Supreme Court on January 7, 1932. A motion was made for adjustment of the preliminary injunction so as to readjust the correlative rights of the leaseholds in the field which had been disregarded by the operators in the waste of gas, and which would effect in some manner a compensating curtailment of those leases for the overproduction in which they had indulged during the time the matter had been in court. The case was set down for trial on May 9, 1932. None of the companies concerned desired to litigate the question of such compensating adjustments in a case under the control of the State authorities, and on motion of the defendant Associated Oil Co., consented to by the director of natural resources, the case was put off the trial calendar. On April 29, 1932, the attorney for the State instructed the clerk to dismiss the case.

The first order regulating production to prevent waste in the Ventura Avenue field was made on October 3, 1929. The order required certain particular high gas-oil ratio wells to be closed in, assigned allowed quantity of gas production in cubic feet per average day to each leasehold, restricted production in the field generally to wells under 10,000 ratio, but allowed in an area at the top of the structure production from wells as high as 20,000 ratio. The order was appealed to the board of commissioners in District No. 2, who made an order prohibiting release to the air in excess of 10 percent of the gas produced from Ventura Avenue field without any other restrictions, and that order still continues in effect. It was so greatly violated during the fall of 1931 that a new hearing was initiated by the State, but the companies proceeded to regulate their production so as to reduce the blow to the air to less than 20,000 cubic feet of gas per barrel of oil produced and less than 7 percent of the gas produced, and on a showing that this condition would continue, the new proceeding was dismissed on June 15, 1932.

While the proceedings in Santa Fe Springs were being heard, similar action was brought in respect to the Signal Hill Oil Field at Long Beach. This action trailed the Santa Fe Springs action, and while the demurrers of defendants and motions to strike were finally overruled by the trial judge, he was disposed to deny a preliminary injunction, and by the time the questions had been definitely settled in the *Santa Fe Springs* case the production of gas had so decreased that following the dismissal in the *Santa Fe Springs* case the *Long Beach* case was dismissed, on May 13, 1932.

On January 12, 1932, an order was made in Oil District No. 3, Santa Barbara County, prohibiting the release to the air of gas in excess of 5 percent of that produced by any operator. On appeal to the board of commissioners, this order was affirmed, but the effective date postponed to June 1, 1932, to give the operators time to provide for the disposition of the excess gas. The decreased demand for gas, particularly for industrial purposes, has created a difficult situation in the

disposal of gas, particularly from a field located as the Elwood field is, and the reports for the first part of June showed a release of gas in excess of that allowed by the order.

The Kettleman Hills complaint was filed 3 days after the Petroleum Securities Felix No. 1 came in on January 19, 1930. The lack of outlets and the necessity of avoiding discrimination between producers while the Milham and Continental wells were out of control precluded any effective injunction. The first injunction was granted under date of April 13, 1931, prohibited below to the air in excess of 10 percent by any producer, and required all future wells to be drilled 1,000 feet into the Temblor, but contained special provisions in regard to the two uncontrolled wells and their offsets. These wells having been brought under control, further applications for modifying the injunction were made, which have been continued from time to time. The operating companies have reduced to submission the large wells with the high pressure from great depths in this field, with the result that the release to the air has been reduced to approximately 23,000,000 cubic feet a day, being about 380 cubic feet to each barrel of oil produced, and about 10 percent of the gas produced. This is about what the orders applied for by the State require during the summer, though a lower waste is desirable in the winter.

A sudden and unprecedented blow of gas to the air from the Dominguez Field, which had hitherto been one of the best-operated fields in the State, made necessary an action to restrain waste in that field, which was filed April 11, 1932. A temporary order was made requiring the closing in of nine wells producing at high gas-oil ratios and which stopped the greater part of the unreasonable waste. An adjournment was then taken to see what further the operating companies could accomplish. When the matter came on for hearing following the adjournment, the companies were able to report that there was no waste, and that all the gas produced in excess of demands was being used for repressuring purposes.

Since that time, a number of other court actions have been resorted to, but the effect of this law, coupled with voluntary curtailment of production of both oil and gas, have effectually reduced the wastage of natural gas in California. During the year 1937, the quantity blown to the air and wasted in the fields amounted to but 4.46 percent of the total gas produced.

(2) *Oil-water contamination.*—A principal duty of the State oil and gas supervisor is to prevent damage to underground and surface waters suitable for irrigation or domestic purposes from contamination by reason of the drilling, operation, maintenance, or abandonment of oil or gas wells, and to prevent the infiltration of water to oil- or gas-bearing strata (sec. 3, California Laws for Conservation of Petroleum and Gas). Each field deputy has the responsibility to collect all necessary information concerning water-bearing strata and surface waters in oil regions. This is done so the deputy may advise operators as to the best methods for protecting such waters and oil sands, and order needed tests or repairs at wells (sec. 5, California Laws for Conservation of Petroleum and Gas). The supervisor is empowered to order such remedial works as in his judgment are necessary to protect usable water resources for the benefit of neighboring property owners and the public at large (secs. 8 and 15, California Laws for Conservation of Petroleum and Gas).

Before starting drilling of an oil or gas well, the operator shall estimate the depth at which water will be shut off, state the method by which such shut-off is to be made, and tell the size and weight of casing to be used (sec. 17, California Laws for Conservation of Petroleum and Gas). Each operator shall test the shut-off of water by any casing cemented or landed in a stratum overlying an oil- or gas-bearing stratum. A report on all such tests must be made by the supervisor or his agent (sec. 19, California Laws for Conservation of Petroleum and Gas).

No oil or gas well may be abandoned unless all water be shut off from oil- or gas-bearing strata, and every effort be made to protect underground or surface water from the addition of any detrimental substances (sec. 16, California Laws for Conservation of Petroleum and Gas). All such work must be done to the satisfaction of the supervisor or his agent.

Supplementary ordinances to protect surface and underground water supplies from pollution by oil have been passed by at least one county—Santa Barbara. It is understood that the State supervisor assists in enforcing these local regulations.

(3) *Spacing of wells.*—In 1931 an act to regulate the spacing of oil and gas wells was passed by the legislature (ch. 586, Statutes of 1931). This law was designed to reduce the economic waste caused by "town lot" drilling. Any new

well located within 100 feet of an outer boundary of the parcel of land on which it is situated, within 100 feet of a public street or highway, or within 150 feet of an existing oil or gas well is declared a public nuisance. A modification permits one well per acre on tracts of irregular size less than 250 feet in width. The constitutionality of this act has been contested, and a decision of the State supreme court is expected some time during the fall of 1938.

(4) *Unit operation of fields.*—Operators may enter into agreements for the co-operative development and operation of all or part of any field when, in the opinion of the supervisor, such action is in the interest of the protection of oil or gas from unreasonable waste (sec. 8c, California Laws for Conservation of Petroleum and Gas). Such agreements may fix the time, location, and manner of operating wells, and provide for the return of natural gas into the subsurfaces of the earth for purposes of storage or repressuring. Any such agreements are declared binding on the successors of the parties thereto, and enforceable in action for specific performance.

(5) *Restriction on wildcatting.*—There is no specific State law restricting wildcatting, although several provisions may influence this activity. Section 20a of California Laws for Conservation of Petroleum and Gas, for example, provide that every person or firm engaged in the drilling, redrilling, or deepening of any oil or gas well must file an indemnity bond of \$5,000 with the supervisor. This bond is surety that the driller will comply with all regulations governing the drilling of such wells, and insures the State against losses incurred to obtain compliance with such regulations. The same section provides that any person or firm engaged in drilling five or more wells at the same time may file a bond of \$25,000 to cover all current operations.

In addition, persons drilling an oil or gas well must submit to the supervisor or his deputy a written statement concerning their intention to start drilling, together with certain information about the proposed well (sec. 17, California Laws for Conservation of Petroleum and Gas). Furthermore, the driller must keep an accurate log, core record, and history of each well (sec. 18, California Laws for Conservation of Petroleum and Gas). A complete statement concerning such wells must be filed with the supervisor within 30 days, if the well be in proven territory, or within 6 months if it be a prospect well.

(6) *Abandonment of wells.*—No well can be abandoned unless the owner submits in writing a notice of his intention to the supervisor (sec. 16, California Laws for Conservation of Petroleum and Gas). Within 15 days after the completion of abandonment, the supervisor or his deputy must either approve the abandonment, or state the causes for disapproval. Recommended changes must be made before final approval is given by the supervisor. Notice also must be given to the supervisor prior to removal of any rig, derrick, or casing (sec. 16a, California Laws for Conservation of Petroleum and Gas). Within 5 days after the completion of such removal, a written report concerning all work done must be made to the supervisor.

(7) *Prevention of blowouts, explosions, and fires.*—The supervisor has authority to require the use of strong casings and other safety devices for wells in districts known to have high gas pressure, or where the pressure of petroleum and gas is unknown (sec. 3, California Laws for Conservation of Petroleum and Gas). Drillers and operators also are charged to use every effort to prevent blowouts, explosions, and fires.

(8) *Leasing of State lands.*—The State of California owns certain tidelands with known resources of oil and gas. Drilling on these lands long has been prohibited, although in some quarters it was believed that State-owned oil was being removed by wells on adjacent property. A law (subdivision 10, ch. 325, Stats. of 1931) permitting the leasing of State lands was repealed by referendum in 1932.

Finally, in 1938, the State Lands Act was passed and approved by the Governor (ch. 5, Stats. of 1938). This act creates a State lands commission consisting of the State controller, the director of finance, and the Lieutenant Governor. It is authorized, with the consent of the Governor, to lease the State's oil lands to the highest bidder on a royalty basis. Drilling on tidelands or beaches is not allowed but slant-drilling from sites on the adjacent upland is permitted.

(9) *Proration of oil production.*—In 1931, soon after the first impact of the depression, the Sharkey bill became law (ch. 585, Stats. of 1931). This act provided that a commission of six members be elected by the majority vote of all producers of crude oil. Authority was given the commission to establish production quotas for the State, the several oil fields, and for zones, properties and wells in each oil field. The referendum of May 1932 repealed this measure, largely as a

result of energetic opposition by the independent producers. No official State proration scheme has been in effect since that date.

Central committee of California oil producers.—Beginning in 1929, California producers began to cooperate in associations designed to secure voluntary curtailment of crude oil production. After several changes in name and membership, the Central Committee of California Oil Producers was formed in 1933. This committee, the present regulating body, includes all major corporations, as well as most of the so-called independents. It has been estimated that the committee represents about 90 percent of the crude oil production of the State (Watkins, M. W., *Oil: Stabilization or Conservation?*, Harper Bros., 1937, p. 233). Proration agreements are established by the committee and administered by an oil umpire whose headquarters are in Los Angeles.

An outstanding principle of the committee has been to limit the production of new or flush fields, irrespective of advancing potential, until either a general increase in the demand for oil, or decreased production from existing fields makes necessary an increased allotment to said new or flush fields (*ibid.* p. 236).

Federal Laws.—Federal laws have been of relatively little significance in regulating oil and gas in California. Several, however, are or have been of sufficient importance to warrant brief consideration.

(1) *National Industrial Recovery Act.*—The National Industrial Recovery Act Petroleum Code required regulation of production about like that already instituted by the Central Committee of California Oil Producers. Accordingly, in September 1933, the compilation of quotas for the production of crude oil allocated to the State under article III of the Code was made the responsibility of the committee (*ibid.*, p. 235). The umpire was authorized to distribute quotas and adjust disputes.

Several marketing agreements—The Pacific Coast Cartel the Pacific Coast Petroleum Agency, and a refiners' agreement—also were approved and set in operation with the approval of the Petroleum Administration (*ibid.*, pp. 237–246). Death of the National Industrial Recovery Act in 1935 ended all these activities.

(2) *Connally Act.*—Shipment in interstate commerce of oil produced in excess of the State quota—so-called "hot oil"—is prohibited by the Connally Act. California has no official quota. The Connally Act, therefore, has no effect in this State.

(3) *Bureau of Mines.*—Since 1935 the Bureau of Mines has issued monthly estimates of demand for the oil produced by each State. This estimate has no legal significance, but it is designed to serve as a basis for State and other proration measures.

(4) *Federal reserves and leases.*—California has two naval oil reserves—No. 1 at Elk Hills, and No. 2 at Buena Vista Hills. Certain other public land in the State also has known oil resources. Prospecting permits for periods not exceeding 2 years are issued by the Secretary of the Interior. In 1935 an act was passed making it mandatory that leases on Federal land be operated in a cooperative or unit plan.

Interstate Oil Compact Commission.—Following the demise of National Industrial Recovery Administration control, six States—Texas, Oklahoma, Kansas, New Mexico, Colorado, and Illinois—formed an Interstate Oil Compact Commission to continue, on a cooperative basis, the principle of proration. California is not a member of this group. Their recommendations, therefore, have no direct influence on this State.

EFFECTIVENESS OF REGULATION

The effectiveness of oil and gas regulation may be judged by three factors: (1) Amount of needless waste; (2) characteristics of the market-production ratio; and (3) simplicity of the enforcing machinery.

Oil regulation.—Except for a brief period under the National Industrial Recovery Administration, the proration of oil in California has been on a voluntary basis. Regulation has been conducted with a minimum of politics, complication, legislation, court action, and expense. Two significant quotations indicate that this system has functioned in a fairly satisfactory manner:

(1) " * * * California fields had been under a generally effective and comparatively severe restriction almost continuously from 1930, by means of voluntary proration * * *. The severity of the restriction accomplished in California under the foregoing procedure (National Industrial Recovery Administration) * * * represented no additional self denial to California producers. They simply continued under the code the restrictions which they previously had

imposed upon themselves in their own interest * * * (Watkins, M. W., *Op. Cit.*, pp. 110 and 236).

(2) "Voluntary curtailment of oil production has been successful * * *. Compliance with quota assignments based upon determined percentages of maximum potentials have been generally adhered to with the occasional exception of small independent producers in the so-called town-lot fields." (Claude C. Brown, California Railroad Commission, in a letter dated August 16, 1938.)

From a peak of nearly 300,000,000 barrels in 1929, production in California was cut to 172,000,000 in 1933 (Minerals Yearbook, 1937, p. 1008). By 1937 production had increased to 239,000,000 barrels, but net withdrawals from storage during that year were some 3,800,000 barrels. (Oil Producers Agency of California, quoted on p. 18 of the California Conservationist, August 1938.)

Clearly oil-production control has been effective not only in preventing an actual increase such as might have seemed warranted by the record-breaking national demand in 1936 but also in keeping relative production far below the 1929 level. This fact is illustrated by the following table, copied from page 1006 of the Minerals Yearbook, 1937:

Percentage of crude oil produced by principal States

State	1929	1930	1931	1932	1933	1934	1935	1936
Texas.....	29.5	32.4	39.1	39.8	44.5	42.0	39.4	38.9
California.....	29.0	25.3	22.2	22.7	19.0	19.2	20.9	19.6
Oklahoma.....	25.3	24.1	21.2	19.5	20.1	19.9	18.6	18.8
Subtotal.....	83.8	81.8	82.5	82.0	83.6	81.1	78.9	77.3
Kansas.....	4.3	4.7	4.4	4.4	4.6	5.1	5.5	5.3
Louisiana.....	2.0	2.6	2.6	2.8	2.8	3.6	5.0	7.3
New Mexico.....	.2	1.1	1.8	1.6	1.6	1.9	2.1	2.5
Michigan.....	.4	.4	.4	.9	.9	1.2	1.5	1.1
Pennsylvania.....	1.2	1.4	1.4	1.6	1.4	1.6	1.6	1.5
Arkansas.....	2.5	2.2	1.7	1.5	1.3	1.1	1.1	.9
All other.....	5.6	5.8	5.2	5.2	3.8	4.4	4.3	4.1
Total United States.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Gas regulation.—Since 1929 the enforcement of laws prohibiting the waste of natural gas has been quite successful. The quantity of gas blown into the air has been reduced from a maximum of 248,000,000 cubic feet in 1929, to an average of some 20,000,000,000 cubic feet during recent years. In fuel value this current wastage is roughly equivalent to 3,200,000 barrels of oil or 800,000 tons of coal. Any waste is regrettable, but because oil and gas are produced together in California some actual waste seems unavoidable. It is probable, however, that intensive repressuring could still further limit the amount of gas now being irretrievably lost.

Seasonal regulation of gas production is a significant but little-known feature in California. Producers permit their wells to yield more gas during the winter when, because much gas is used for heating purposes, the demand is up; during the slack summer season, gas production is curtailed (Claude C. Brown, letter dated August 16, 1938).

Field operation.—Except for gas wastage, laws governing the drilling, operation, and management of wells appear to be adequately phrased and reasonably enforced. There is little evidence that oil is needlessly lost or wasted due to technical inefficiency.

The new Wilmington field illustrates the effect of mandatory spacing of wells, but more wells still are drilled than are really necessary. Unit operation of oil fields—permitted under certain conditions by State law—has not been tried out except in Kettleman Hills North Dome and in Coalinga. Both of these areas, however, are in part Federal leases where unit operation is required.

CONCLUSION

California has a substantial record of accomplishment in the field of oil and gas conservation. It is important that this good work continue, and that it be strengthened and improved at every opportunity. Only by constant vigilance can oil fields be kept active for a maximum period of time, labor get steady employment, producers enjoy a satisfactory long-range price structure, and the State have both a sustained income and a dependable fuel supply.

This brief review of oil and gas regulation in California suggests that three factors seem to merit special attention. These are:

- (1) Further reduction of gas wastage.
- (2) Maintenance of a reasonable oil-production-demand ratio.
- (3) Unit operation of oil and gas fields.

Mr. COLE. I understand you to say that the board prepared this report at the request of the National Resources Committee?

Mr. MORTON. That is my understanding. It was not prepared with regard to any pending or proposed legislation in this State. The names may be familiar to some of you. I state to you they are all known in this State and three of them were State officers at that time.

Mr. COLE. It may go into the record at this point. I want to keep it up here with the committee for the time being.

Mr. MORTON. You may keep that. The secretary has a copy.

Mr. COLE. Mr. Pearson.

Mr. PEARSON. Right in that connection may I ask you, is it your opinion that those three recommendations can be met under a voluntary set-up rather than mandatory legislation?

Mr. MORTON. Yes; and they are being met, and the very chart I first gave you shows how we are meeting them since the date of that report under figures and facts which you have before this hearing concludes will show other matters in that regard. They most decidedly will, and that is in fact the whole point of my talk to you gentlemen here.

Gentlemen, you cannot out-conserve me. I am as much for conservation as you are.

Mr. COLE. What page did you read from?

Mr. MORTON. I read from page 22, I believe it is. There is a circle around it, Mr. Cole.

People may differ on methods of conservation, or even on the amount of conservation, but I do not want you to be under the impression that the oil industry of California favors or is engaged in any campaign for disregarding our natural resources of oil and gas.

Gentlemen, the State of California, the Governor told you, is opposed to control apparently by the State, and he feels that for the same reason the people of the State of California are opposed to Federal control. My conclusion which I will cite in support of my next discussion, I might state this way: That is, that the California oil industry is opposed to the control of that industry by a political commission or an individual commissioner or a group of commissioners. I think this position is with good reason. Some people, I believe, and I hope that they are still of a small minority in this country, favor the control of industry by a commission wherever it is possible. There are others, and I believe that they are by far the majority of those in the State of California, who do not want politics or Government in business, unless the public welfare requires it.

Gentlemen, with all due respect to our Governor, who is a good personal friend of mine, I think he is of that minority who favors control of industry by government, believing always that will be for the best interests of the people—a conclusion to which he is entitled. But the other conclusion to which some of us feel that we are entitled, is that you must put the necessity first and not interfere with business through either the Government or politics, unless the necessity or

public welfare requires it. We do not want political commissars in this country; you have them in Russia and you have them in Germany. More commissions, more commissars, until you have a situation closely resembling nazi-ism or communism—and I do not personally distinguish between the two.

As I read this bill, Mr. Chairman and gentlemen, it would place the industry of this Nation in its present form at least, under one man, a man appointed by the President without even confirmation by the Senate, which is required of most presidential appointees. The power given to this one man, or this commissar, if you please, is very great, or so it appeals to me as a lawyer. You gentlemen are undoubtedly more familiar with the bill than I am, although I must confess that I have read it over a number of times. And before I finish my few words of discussion I would like to call attention to at least one matter which hit me like a thunderbolt as I read it. Under this bill the commissioner is given power to determine whether the amount of oil produced from any field is in the proper ratio to the estimated reserves in that field. Now, gentlemen, in other words, failure of a field to comply with all of that particular subdivision is *prima facie* evidence of waste, after one year's time. The commissioner could say a particular field is producing more oil in ratio to its estimated reserves than it should, and say that that field shall produce less oil and hence—hence whatever market may be available would of necessity be transferred to other fields.

Mr. COLE. Which part of the bill are you reading from?

Mr. MORTON. I am reading, Mr. Cole—I think you have the same form—the page I have is page 7, and the matters to which I am referring, if I may get my copy of the bill which is here, I will refer to it exactly.

On page 7 of the bill, subdivision (c) of section 5 says, among other things:

The commissioner shall consider for each field as a whole and the several parts thereof the ratio of production of crude oil to estimated reserve.

And then I might follow the bill through a little further by referring you to section 3, and then I may further follow it through to section 9, which reads [reading]:

PROHIBITED PRACTICES

SEC. 9. It shall be unlawful for any person, during the effective period of any applicable regulation promulgated under the authority of section 6, section 7, or section 8 of this act, to employ any method or practice designated and defined in such regulation as wasteful.

In that bill as it is now, if I can read the English language at all, the commissioner will create a new set of crimes over night, carrying with it its punishment, not only a fine but imprisonment for 2 years, by virtue of the simple provisions here found in the bill, and especially in the paragraph referred to; and that, gentlemen, without any hearing. And do not think, gentlemen, that I am being fantastic when I imply that a Federal agency would do such a thing. Here in California it has happened; we have had that experience here with the Federal control, and such things have and do happen. And that is the reason I fought the Atkinson bill and the reason that I am against your bill.

Gentlemen, in the fight on the recent Atkinson bill attempts were made to obtain support of oil operators for the bill and in some instances such attempts were successful by urging that unless the Atkinson bill became a law in California we would have a Federal bill and Federal control. The bugaboo of Federal control was the dire threat used to attempt to scare independent producers in California. By many this has been and is considered the direst of all results—the acme of unfortunate happenings—to have Federal control.

Now, gentlemen, that may sound silly to you, and you may be wondering why the threat of Federal control would strike stark-naked terror to people in the oil business. It is because we had it in the N. R. A., and we saw how it worked.

With your permission I will give you just a couple of examples: Under the N. R. A. we had the Petroleum Administration Board, as I am sure you all know. This board to a considerable extent was composed of what I might term bright young men—although I mean no disrespect to them, but they were inexperienced in the oil industry, as I understand it, and the regulations here in California were issued for the production of the wells for the various fields based on potential production of the wells.

In this vicinity, and in the Los Angeles Basin, and within an hour's drive of where we all are, there are three fields, which I will take for example: the Dominguez field, the Seal Beach field, and the Huntington Beach field. Dominguez and all of these fields are within 15 miles' drive of one another and all produce substantially the same product. Dominguez and Seal Beach were owned practically entirely by what we call or term the major companies. Huntington Beach was largely operated by small, independent producers. Believe it or not, gentlemen, wells of a given potential in Dominguez and Seal Beach were given one allowable, and wells in Huntington Beach were given a lesser allowable.

Clients of mine and friends of mine in some instances resisted such an order. Under the N. R. A., gentlemen, you had free access to the courts for relief. Suit was brought here to compel compliance, and those suits are in detail—in the records in our Federal court here.

So great was the discrimination shown that the Government's counsel did not bring the matter on for hearing but it was continued from time to time and with the death of the N. I. R. A. the lawsuit died.

Mr. COLE. Was it politics?

Mr. MORTON. I do not know. Recently in talking with oil men in reference to the N. I. R. A., they brought to my attention the fact that members of the administrative board here in California seemed to favor the San Joaquin area where major interests operated. Why it happened, I do not know.

Sometime ago we had before your committee or when you were here some years ago, I believe, we had a large independent producer and refiner, that is to say, he was a production running something like several hundred thousand gallons of gasoline each month, but he refines it in his own plant, it is not processed by another; he is an independent. They wanted to produce their own oil for their own market, but they got into difficulties with the representatives of the administrative board here, and the young man in charge of things

for the board cut the allowable for a particular month to zero. Yes, gentlemen, to zero. With its own market of several hundred thousands of gallons of gasoline to be met. Obviously, such an order was disregarded on the advice of its counsel. Relief was sought at the hands of the court, and they went on their way, because in due time the N. I. R. A. died.

Mr. WOLVERTON. May I ask right there who made that order?

Mr. MORTON. The young man's name, I believe, was Eaton. I believe that Eaton was the man's name, he was a young man of some twenty odd years, and I believe since that time—or short time after he went to New York, that is the information I have, and is in New York at the present time with the Shell Oil Co.

Gentlemen, there are two very common characteristics of all of these new oil control bills, yours here, gentlemen, and the Atkinson bill also. First, you always work out a new definition of the common word "waste." Even though waste, as we ordinarily understand it does not exist, and even though there is no actual waste of a commodity in the strict sense of the word. And, second, you always endeavor to place restraint upon someone who is injured or has reason to think that he is injured, to prevent free access to the courts. I point out a fresh definition of the word "waste" in this bill. Some men might think that was the proper ratio of production to reserves, and certainly reserves, as you gentlemen know, is one of the most encouraging things that we have. In this Atkinson bill that you have heard so much about, waste was given a new meaning. Waste, in addition to its ordinary meaning, included the production of crude petroleum in this State in excess of the reasonable market demand for such crude petroleum as determined by the Commission. In other words, irrespective of any thought of underground waste, injury to the reservoir, surface waste, or loss of production, increase of production to more than the Commissioner shall say is the market demand. All of those things would be waste under that Act. I do not know why under the name of conservation we have to have new meanings given to words. And I do not know why they always seek to restrain the rights of business men to have redress from their grievances. Sometimes, gentlemen, under the laws and ordinances, we have very just grievances. I have heretofore referred to the fact that Mr. Ickes testified before that we defeated the conservation law, and I want to repeat at this point that I feel that I took no part in defeating a conservation statute. I do feel that I helped to defeat a control bill which would have set up a board of three commissioners in this State. These commissioners, who, under their act, were given power, or such that adequate relief would not be available in the courts, and the right to resort to the courts was severely restricted.

When the Atkinson bill was adopted by the legislature, many people, thinking that they knew whereof they spoke, including some of the alleged financial experts writing for some of our local papers, came out with prophecies, "Now you will see these independents open up wide because in 90 days that law goes into effect and they will have to go wild in the next 90 days." And nothing like that happened. As a matter of fact, the story will show that our conservation program was continuous and continued to improve during that 90 days, during the entire battle on the referendum.

I can say that many of us felt quite confident as to the defeat of the bill, but irrespective of that, I saw no signs among those with whom I associated, of any desire to open up wide in any sense of retaliation or otherwise.

It is interesting to observe, before I leave the subject of this control bill, that in the oil districts in this State, and in every county where there is oil produced, this bill was literally snowed under, and in the districts where there were oil workers, despite the fact that the author of this bill was a young man who stated it was a C. I. O. measure and was introduced at the request of the C. I. O., the oil workers in his district and in other districts where there were oil workers, the ratio ran in some places as high as 10 to 1 against the bill.

I call attention to the vote in oil districts because I believe it is proper to say that people there, and only a small percentage, of course, are in the oil business actually, and are in a better position to understand the situation. The bill would have been defeated by a much larger majority had those who opposed the matter had the necessary wherewithal to give the people of this State the entire and true picture.

I would crave your indulgence, Mr. Chairman, for just one moment for what I might call a brief refutation to the Governor's statement of the vote being on a miscomprehension of the facts. I think that every attempt was made by the proponents of the bill to misrepresent the facts of the situation. This State of ours was plastered with billboards from Mexico to Oregon with misleading signs such as the one I show you here, which is a photostatic copy of a sign: "Independent oil men pay for cheap gasoline. Vote yes on 5;" and also a comparable number with this: "U. S. Navy for National defense. Vote yes on 5."

Mr. COLE. What authority was there for that?

Mr. MORTON. I was going to say that we were advised by the gentleman in charge of personnel of the Navy Department—and I will file that telegram—that this use in that instance was unauthorized.

The following is the telegram referred to which is offered as part of the record:

C. G. WILLIS,

1136 Subway Terminal Building, 417 South Hill Street.

Reference your telegram to Secretary of Navy advertising done without sanction and cooperation of Navy Department. Policy prohibits official approval either side in any political issue. Advertising feature naval personnel or material must be referred to Department for approval otherwise it is illegal. No reference made to Department or other naval representatives in this case.

L. P. LOCVETTE,

Commander, United States Navy Public Relations Officer.

Let me go further on this——

Mr. COLE. Well, let me interrupt you to get this point straightened out.

Mr. MORTON. Yes.

Mr. COLE. You are not finding fault as to the correctness of the statement but to an authorization to distribute that sort of thing?

Mr. MORTON. That is right. Yes, the Navy had representatives here for the bill from the very beginning.

There is one other sign that will be probably of great interest, gentlemen, and this one says [reading]:

For national defense. Standard Oil. Smash international monopoly. Vote yes on proposition No. 5.

Gentlemen, that sign, I believe, I could prove was paid for by the Standard Oil Co.

As an example of the rest of the false propaganda that had to be overcome, a series of short motion pictures were shown in a part of the State where the vote was close, and it showed a fleet of battleships at anchorage and a picture of an oil well breaking loose and flowing wild taken many years ago, carrying the thought to the uninitiated that we must stop that waste to give the fuel to the Navy. Perhaps it is legitimate propaganda, but there it is.

Now, I know you gentlemen do not want much time spent on this particular matter, but may I ask your permission to supplement the statement which appears at page 515 of the record of your hearing of last November 10 when Mr. Ickes was before you. I assure you that the statement that was made there by him was not intended to be incomplete or inaccurate, but on the basis of information which he had when he made that statement, and it carries with it an erroneous impression and gives an erroneous state of facts, and I am sure that he and your committee would be glad to have that supplemented.

Mr. Ickes said:

I regret that I could not be here earlier, but I have just returned to Washington from California. While there I joined Governor Olson in a radio broadcast in which I expressed my idea of the Federal interest in the Atkinson Oil Bill, which was before the people of California on referendum last Tuesday. This bill had the support of President Roosevelt—

and so forth,

but it was defeated.

Now this is the part to which I refer:

Reports filed with the California Secretary of State on October 30, 1939, show that \$230,385.66 had been expended up to that date by those against the measure, and \$156,740.08 by those who favored it.

The true fact that the record shows that the final date for filing the reports of these expenditures was the next day, October 31, and hence the error, because on October 31, 1 day after the Secretary referred to, the record shows that the amount expended by the proponents of the bill was \$218,174.87, the reason being that their report for the southern part of California reached the Secretary of State's office on the 31st rather than on the 30th. Under our election laws, 30 days after the referendum action, a special report is required to be made by both proponent and opponent.

Mr. COLE. It is entirely proper to correct the figures, are you correcting the item of \$156,740.00 to bring it up to date?

Mr. MORTON. \$218,174.87, but you have to change the date to get that.

Mr. COLE. \$218,174.87?

Mr. MORTON. Yes; that is right.

Mr. COLE. How about changing the item of \$230,000.00?

Mr. MORTON. No; the opponents had filed their full report on that date.

Mr. COLE. Suppose you bring it up to date.

Mr. MORTON. I am just about to do that, sir.

Mr. COLE. All right.

Mr. MORTON. Thirty days after the election, the law is very mandatory that the final report must be made. The opponents filed their figures and the figures was \$392,454.03, and that includes, gentlemen, some \$53,000, the cost of securing the signatures on and qualifying the referendum, as distinguished from the election campaign. And they have, the proponents of this bill, those in charge of it, made a flagrant violation of the purity of our election laws, in that they did not file a complete final list of expenditures. They filed a return for their northern committee, but there were two such committees, a northern committee and a southern committee, and they filed the total of the northern committee of \$215,853.17. That is just the northern committee. Their southern committee did not make any return, and up to yesterday had not made one, although the time has long since gone by, but if you add the total northern figure of \$215,000 to the first southern figure, which was filed, and that October 30 figure of the Secretary was the southern figure, you will find some \$385,000, I believe—I haven't made the addition. But, gentlemen, before passing on this subject, I think you should know, and I think everyone in this room should know, if they do not already know it, that with respect to the source of the contributions to this "Yes" campaign—our law is very precise on that, that all contributions over \$25 must be listed—every dollar of contribution reported by both the northern committee and the southern committee to the "Yes" campaign is shown as having been made by one single individual person, who is an attorney for an affiliate of the Standard Oil Co. That one man is listed in the Secretary of State's office as having contributed \$385,000 to this "Yes" campaign. There is not a report of a single penny contributed by anyone else.

Gentlemen, I think it safe to say that an attorney did not individually supply that large sum of money, but it is a fact that you should have, and I believe that this unreported cost in southern California, which has never been reported, based on the day-after-day full-page ads in all our metropolitan papers, and the billboards that were in every direction you glanced in southern California, must have run at least another quarter of a million dollars.

I think that may be something to which the Governor referred when he said that he thought many people voted against this bill because they thought the Standard Oil Co. was for it. Obviously, many of these facts could not be disseminated to the people of the State because they didn't all come to light until after the election. So much for that. I do not think there is much occasion to spend any more time on it. It is an interesting side light only as we go along.

Now, gentlemen, I would like to briefly discuss the question of gas wastage in California, and I will make my discussion brief because I am sure that others will discuss it, and I do not want to tread upon the toes of others who have prepared statements. But much has been said by proponents of legislation of this kind with reference

to the waste of natural gas in California. We have laws and sufficient laws to prevent the wastage of gas. As I have heretofore stated, I believe in some instances, due to politics, that law has not been enforced in times past. I will elaborate on that one phase of it. In recent times, particularly in the last year, the same have been enforced, and a good example of that is the Montebello deep sand, where we have an oil field called the Montebello oil field, and that has had production for many years. Recently there was a deep sand, producing a large quantity of gas. And there is a town-lot area with the usual town-lot problem. Rather than permit waste of gas, the director of natural resources of California very properly in the name of the State of California brought an injunction suit, and that suit resulted in a restraining order issued by the Court restricting them to what the court deems reasonable under the circumstances, and the court in that proceeding has designated a committee of very reputable engineers in the industry to make recommendations to and assist him.

I say if these laws had been enforced in this manner as they should have been in other new fields in the past seven or eight years, that we would have had greater conservation in California, and I feel sure that never again in California will you ever have a field that is not restrained before they get out of hand.

However, before dropping this question of gas wastage, I think it only fair and proper in view of the criticisms that have been directed at California, to call the committee's attention to the comparison which was prepared by the director of natural resources of California last May in comparing California with certain other States on this subject of gas wastage.

In that report the then director of natural resources of this State said:

Comparison of conditions in other States have been made. Gas wastage in Texas in August 1938, the average daily blow to air was 406,550 M cubic feet, over six times the quantity blow in California in the same month. In addition to that, gas consumed by manufacturing carbon black amounted to 764,988 M cubic feet, a practice which is wasteful and which is prohibited in seven States. This makes a total gas wastage in Texas of 1,717,538 M cubic feet per day, 19 times the quantity wasted in California. Texas in that month produced only twice as much oil as California.

On April 25, 1939, the daily gas production for the State of New Mexico was 455,192,000; blown to the air 91,000,000, a gas wastage of 20 percent.

A comparison of 1934, an N. R. A. year, with 1939 in California, gentlemen, would show a gas-oil ratio for the entire State in 1939 of at least as low if not alower figure than 1934, and that situation is continuing to improve.

In speaking to you today, gentlemen, I represent also the California Stripper Well Association, a trade association comprising over 300 small-well operators. This association is not affiliated with any other association in California nor any national stripper-well association. Its only interest being the welfare of the small-well owners of California who produce in excess of 90,000 barrels of oil a day from the 10,000 small wells in this State. Undoubtedly that data will be forthcoming on the subject of these small wells, and my remarks will be very brief.

With respect to marginal wells—and some people probably differentiate between marginal wells and stripper wells—but by marginal wells is meant wells whose amount of production in relation to the

cost of producing is so close from the profit standpoint that the entire amount of potential production must be produced to make it pay to continue operations. But those wells are exempt from curtailment. Small wells of that type are not curtailed, and we believe that is true conservation.

As to stripper wells, of which we have many—that is, wells that are producing from formations where we have water encroachment—it is necessary to operate the same efficiently and continuously to obtain the maximum ultimate production from these wells. But there has been some difference of opinion between engineers as to whether you can curtail such wells where you have large quantities of water. I believe that is the minority view. My observation and personal experience have been that wells producing a large quantity of water with the oil cannot be shut in or attempted to be curtailed without increasing the water content of the production and decreasing the oil content. However, we who have that type of well realize that under our present democratic system that problem can be and is being worked out. True conservation requires that the stripper well be produced efficiently, and efficient operations require continuous operation to keep ahead of the water.

I have wells, personally, gentlemen, that produce several hundred barrels of water and 40, 30, or 50 barrels of oil. You simply cannot tamper with that type of well to have true conservation. Gentlemen, I say we feel that problem is one that can be met by those here who understand our local problems.

Now, gentlemen, I don't want to consume more time except as you may want to interrogate me. I do not want to attempt to cover the entire field because there are many here showing their interest by attending and I am sure will show it by appearing before you. Don't misunderstand me. I am not saying to you gentlemen California is perfect but I am in favor of a comparison of California's conservation with any other State that has oil production.

By a strange coincidence I received this morning in the mail a magazine I think called the Petroleum World that comes to my office, and I opened it and there is quite a lengthy article California Stands on Its Record. It discusses this situation, gentlemen, in great detail and I am sure eventually you will have access to it, but rather than say we stand on our record, gentlemen, I say to you we present our record to you. Not that we apologize when compared to other States, but with assurance I say we are not going to stand on that record. There is room for improvement. Our last year has seen steps forward, and I believe we will continue to go forward.

I am perfectly willing now to throw myself open to questions any of you may desire to ask, with this statement, however, gentlemen, I do know other speakers, particularly with respect to our voluntary system, those who actually run it, are here and it would be only fair to you and to them that the details of that be given to you by them. Not that I am not familiar with it but I think it would be unfair for me to cover the whole field rather than they.

I am at your service.

Mr. COLE. If there are any questions you prefer some other witness to answer it will be quite all right for you to so state.

Mr. MORTON. My reason for stating that is I think it is unfair to

have a man prepared to answer on some subject and then have some previous speaker unfortunately cover the same territory.

Mr. COLE. I might ask some questions other than those touched upon by you in your statement.

Mr. MORTON. I will step aside, in fairness to them on the subject, if I may.

Mr. COLE. Mr. Morton, I understood you to say that they, meaning the group opposed to the recent State law which was defeated, opposed it as a control statute and not a conservation statute, and further that you had no fault to find whatever with the section of the Atkinson law which I read, section 1. Are we to understand from that that if you could draw a State law, conservation statute, that passage of such a law in this State as proposed would not be opposed by you and your group? I don't know as I have made myself entirely clear: Do you think there is need for a conservation statute in this State like the legislation declared for in the passage of the Atkinson law to be necessary, but the provisions of which were objectionable as not being a conservation measure.

Mr. MORTON. Mr. Chairman, the trouble with that declaration of policy that we all favor is that the elements of conservation set forth in that bill, physical waste, eliminating the chance of fire, underground waste, and so forth, are already covered by statute in this State. But to make the whole picture sound good and look nice you will find item after item, and I think there are 11 items of waste in the Atkinson bill, but when you get to the point the bill is after it is not the items of waste I named but the production in excess of what the commissioners would say we should produce to meet the demand. That attempt I say was to have a control bill. The other elements of waste are covered by our statute, and any statute directed against preventing waste in its true sense I would favor.

I do not favor a control bill in the sense of setting up a commission or commissioners that will allocate to you and to me how much we shall produce. It is far better that be done by men from the industry such as we have here and which you will hear detailed, which is the true democratic principle where everybody can see whether they are getting a fair deal. You are going to be surprised, gentlemen, when we get the whole set-up before you.

Mr. COLE. Did you take the position before the legislature in opposition to any measure?

Mr. MORTON. Any further measure. I took the position before the legislative committee that we didn't need the new features of the Atkinson bill; that by properly enforcing our present laws with our voluntary system of conservation that is sufficient and as good or better than any other State, and were improving, just as I said before to you gentlemen. I am happy to say during the last 7 or 8 months our record as we go forward is bearing out my assurances given at that time.

Mr. COLE. But you did suggest some amendments?

Mr. MORTON. I said: Gentlemen if you are going to have this bill take out this provision and that provision, and I did put in a provision, or a suggested provision to protect stripper wells which went in but when I attempted to keep to the people who might be injured these discriminatory rules or orders, free access to the courts, I was turned down.

Mr. COLE. If the amendments you suggested to the committee of the legislature had been adopted——

Mr. MORTON. No; that would not have made it a good bill, simply a bad bill would have been better, because it was in its essence a control bill. To illustrate that, the bill as originally introduced did not provide for the commissioners to be appointed by the Governor and hold office at his pleasure. The bill as introduced called for the appointment of three commissioners to be approved by the State senate, of a different political faith at the present time, for example, than the Governor. That bill simply died. We had that bill killed good and dead until the advocates of the bill were willing to have it changed, and it was changed to make the commissioners three members of the Governor's official family, holding office at his will. Without discussing our Governor, and I do not mean to imply anything with respect to him, we believe by setting up a political dynasty would be even worse than the original bill as introduced. The Governor told me frankly as I think he did several others, that he could not go for the bill as originally set up calling for confirmation by the Senate. He also stated that declaration of policy there, as you gathered from his remarks, starts the oil industry toward being a public utility, which of course is still another question. I do not believe, Mr. Chairman—I think I can answer your views there—I don't believe, and I hope you gentlemen will be convinced when you leave, that California needs an oil-control bill, and I ask you patiently to hear the others who will speak to you. I have spoken and maybe others will take exception, because we are never unanimous in the oil business, as any other business. That is my point. I cannot favor in California under the present set-up, and the way we are progressing, any control bill in the sense some political appointee or political person elected or selected is going to allocate production between fields and wells in this State.

Mr. COLE. Mr. Morton, you referred to H. R. 7372, on page 7?

Mr. MORTON. Yes, sir; Mr. Chairman.

Mr. COLE. Subsection 7 of section 5 (c).

Mr. MORTON. Yes, Mr. Chairman. I will try to put my hands on my copy as you proceed.

Mr. COLE. And that language is part of the bill, which reads:

In making the determination required in subsection (a) of this section, the commissioner shall consider, for each field as a whole and for the several parts thereof, such information as may be obtainable as to,

and then on down to No. 7:

The ratio of production of crude oil to estimated reserves, which you singled out.

Mr. MORTON. Yes.

Mr. COLE. Do you find any fault with this formula in the bill aside from No. 7 as to the considerations that the commissioner shall have before him in determining this important part of the proposed measure?

Mr. MORTON. I am directing my objection to the vice of the bill, as I see it, which would apply to most everything in there, for this reason: You are here delegating to one man—of course, we know he in turn will have a lot of subordinates who will probably do the work

and make guesses on these matters, on such matters as this. Take item three, your general assertions, any of them, well spacing, drilling practices, well casing and well completions. I don't think you can appoint a man who is going to improve on well spacing as we have it now in California in our new fields, who is going to be better able than we here to determine our drilling practices and casing program to be, or the manner of completing the wells.

Mr. COLE. Doesn't this merely mean that he should take into consideration the very thing you advocate taking into consideration under a set-up such as this bill contemplates?

Mr. MORTON. That is right; but, sir, you go on and say that, after 1 year, if the Secretary thinks that the producers in any field have not with reasonable accuracy determined these things, then he issues regulations on that party.

Mr. COLE. That is all part of the penal provisions.

Mr. MORTON. And then you tie it in and make it a crime. Now, Mr. Cole, we cannot understand why the author of this bill, whoever he may have been, did not say, "However, nothing in here shall subject an operator to punishment for crime or requiring his well to be shut in until he has had an opportunity to be heard." You go through this bill and every inhibition is upon the operator or the producer rather than anything handed to him for his protection. But, Mr. Cole, perhaps I might make myself clearer: If those provisions to which I have just referred were in here I would still say I do not believe we need or desire Federal control.

But I do think your bill could be improved on, and by "your bill," I do not use that personally.

Mr. COLE. Do the penal provisions of the bill to which you are referring differ in theory very greatly from those under your California gas law?

Mr. MORTON. No, it is much the same idea, a matter of a regulation which would be promulgated.

Mr. COLE. The same principle is involved in both instances?

Mr. MORTON. Yes; the difference from the N. R. A. is in that we had free access to the courts under N. R. A.

Mr. COLE. Have you seen the latest report of the National Resources Agency which was transmitted by the President to Congress?

Mr. MORTON. It is among your hearings, is it not?

Mr. COLE. No, it is not.

Mr. MORTON. I have read it some place.

Mr. COLE. Last week?

Mr. MORTON. Not in the last week.

Mr. COLE. That is the annual report.

Mr. MORTON. I am under the impression I have read it, or a digest of it. I am sorry, but I do not have it at my fingers ends at all to discuss it with you.

Mr. COLE. The report to which I refer is the annual report required by law to be submitted by the National Resources Planning Board. The President transmitted that to Congress on January 11, 1940.

Mr. MORTON. No, sir. I have not seen it, then.

Mr. COLE. I do not know to what extent the National Resources Planning Board made recommendations along lines advocated for California in the report which you filed in the record, but you will find

when that report is printed and comes to you that very definite recommendations were made to the Congress last week by the agency as to the nature of legislation needed at this time.

Mr. MORTON. I have not seen that. Are you through with the copy we had? I would like to retain it, unless you would care to have it. I gave a copy to the secretary.

Mr. COLE. Mr. Morton, as long as you have referred to the fight over the Atkinson bill and the expenses involved, and the Secretary of the Interior did the same thing, if you have a report in your possession showing the total amount contributed by each side, the names of the contributors and the individual amounts of each contributor, I will permit it to go into the record at this time.

Mr. MORTON. I can furnish that for tomorrow, sir. I might be able to furnish the contributors in one instance, but the contributors in other instances I could not. I have a copy of them and I will get them here.

Mr. COLE. I thought you should state it for the record.

Mr. MORTON. If there is any other item I have mentioned that you think might be of assistance, I will make a point to furnish it while I am here.

Mr. COLE. That will be a complete statement?

Mr. MORTON. Yes. I will make it my duty to do so. That is a record, you know, in San Francisco, Los Angeles, and Sacramento.

Mr. PEARSON. May I ask a question?

Mr. COLE. Mr. Pearson.

Mr. PEARSON. Mr. Morton, I was interested in your discussion of the definition of the word "waste", and particularly when you specified the definition of waste as given in the Atkinson bill. In that connection, may I ask you whether or not you had some litigation in the State growing out of the provisions of the Act of 1915 which you say is entitled "The Conservation Statute?"

Mr. MORTON. The only litigation on that subject of any moment was the testing of the constitutionality of the 1929 amendment which prohibited the wastage of gas.

Mr. PEARSON. Now, under what act have you had injunction suits brought to prevent the waste of gas?

Mr. MORTON. Under that same act. It was in that same suit, one involving the Santa Fe Springs field, testing the constitutionality of that.

Mr. PEARSON. Isn't it true the objectors or the petitioners who are bringing charges under that act had difficulty in enforcing it because of the fact it was referred to in the bill as an unreasonable waste, and the courts had difficulty in determining what constitutes an "unreasonable" waste?

Mr. MORTON. No, sir—that was the point, of course, of the objection, but I think it was in 1931 that the constitutionality was upheld, and despite the use of that term, and the enforcement of the statute have been brought under that act, and there is one today, as I say, over in Montebello, and I guess that is the only one that really applies to it, where the court stated it was sufficient to leave it to the courts.

We all know that there is bound to be some waste of gas in all oil operations, such as marginal or stripper wells might produce.

Mr. PEARSON. Now, if there isn't any marked definition of what

constitutes waste, it is a difficult matter of the court to determine what waste is, or what would constitute waste?

Mr. MORTON. They do not seem to have that difficulty.

Mr. PEARSON. Is it not a fact that you have had great difficulty in preventing the waste of gas in California?

Mr. MORTON. Have had difficulty?

Mr. PEARSON. Yes.

Mr. MORTON. Well, I think there is a failure to enforce that statute in connection with one field in particular which should not have been permitted. The law was there to enforce it. And to show you how ridiculous the whole thing is to those of us who are lawyers and who will particularly appreciate it, a suit was brought to restrain unreasonable waste of gas in one particular field in the valley. As I remember my dates, it was about 11 months before the demurrer to the complaint was heard; 13 months before the preliminary injunction was obtained; 5 years later when the State attempted to enforce the injunction because that operator had gotten out of hand, the action had to be dismissed because it had not been brought to trial within 5 years. That was not the fault of the law, but of the enforcement of the law. That was a field which I felt was favored, and should have been taken care of by the authorities in charge of the enforcement. And certainly during that same period of time in fields where we had a similar situation with independent operators involved they were brought up mighty quickly.

Mr. PEARSON. You made some reference to the West Montebello field.

Mr. MORTON. Yes.

Mr. PEARSON. I have some figures that would indicate—I think it was in May 1939—that the percentage of gas waste in that field was 61 percent or a little better.

Mr. MORTON. May I make a suggestion in respect to the Montebello field? I think it is a subject of which you are going to want to inquire into quite thoroughly. From the list of the witnesses that have been given to me, it includes a gentleman who is going to discuss that, and if for any reason it does not materialize, I will be glad to again go into it. It is one of the things that I think it would be unfair for you and me to cover in detail at this time.

Mr. PEARSON. Well, maybe that is so. I want to refer to the two charts that you have introduced for the comparative showing on the production in Texas and in California. I notice your Texas chart shows in every month throughout the period that you have shown that the production has been less than the allowable, except in the month of August, which you said was an exceptional month. Whereas, your California chart, where you do not have the same type of regulation, the production has exceeded the allowable in every single instance.

Mr. MORTON. I noticed that, too.

Mr. PEARSON. I would just like to have the benefit of your idea wherein that shows any improved condition in California.

Mr. MORTON. I did not offer that as a common condition. I offered that as showing that California is not producing excessively, as compared to Texas. We have, shall we call it, a lesser volume of production and have had for the past year.

Gentlemen, I think it is a serious thing for any situation to arise which would require all fields in a State such as Texas and California to be shut in for 15 days, such as we had in Texas last August. I think it would certainly play havoc, and we would not want to see it.

Mr. PEARSON. Would the fact that the production has exceeded the allotment for every month throughout that period indicate anything in the way of failure to conserve the reserves?

Mr. MORTON. In California?

Mr. PEARSON. Yes.

Mr. MORTON. Not at all, because we have not produced excessively.

Mr. PEARSON. The fact that Texas, with a restricted production, has produced less than its allowance, you think would not indicate that they are doing more to conserve the reserves?

Mr. MORTON. No; it would not, and I believe that the 15 days' shut-in in Texas, if I know oil fields at all, caused plenty of damage in the sense of conservation in Texas. It certainly would in our California fields.

Mr. PEARSON. As I understand you, Mr. Morton, you are looking at the situation from the standpoint of the producer?

Mr. MORTON. That is true. I am not here as a lawyer or anything else. I have a fairly good stake for a small boy in actual production in California, and it is very vital to me. It is the biggest material thing that I have and therefore, gentlemen, I am vitally interested in all of these problems.

Mr. PEARSON. Do you think that the interests of the oil industry transcend the interest which the public has in the industry as a necessary reserve?

Mr. MORTON. No; not at all. I endeavored to make that clear. If the public welfare requires the intervention of the Government, then we should have it, but not otherwise. I do not say to you that the oil industry should follow their interests or desires to the detriment of the public good. I do not think that it does in California. I believe that our practices here are becoming more and more consonant with the public good. Especially in comparison with other States I think that our California system is even better.

Mr. PEARSON. But you do not think that the oil industry should be classified as a public utility?

Mr. MORTON. I am not prepared to say that yet, but I do know I certainly would much rather see that than to have a control bill where you would be regulated as to production, leaving us high and dry with respect to pipe lines and having our products refined. I would like to make the point in passing that in Texas and in most of the companion places, pipe lines are common carriers and that while we have laws here saying that is the case, we have one Supreme Court case that knocks that out, and it has never gotten to working. But I do not believe at this time that the making of the oil industry into a public utility is necessary or desirable—if it is ever operated to the detriment of the public good it might be necessary. But to run or attempt to set up commissioners who would be subject to politics—that is another thing. Goodness knows we have too much trouble with the regulation of public utilities at this time here.

Mr. PEARSON. Have you every taken any public position, Mr. Morton, on the question of California being a member of the compact between oil States?

Mr. MORTON. I have never been called on to, sir.

Mr. PEARSON. I believe that is all.

Mr. WOLVERTON. With reference to the voluntary prorations that you have spoken about, who has the personal charge of those?

Mr. MORTON. I do not want to tell you because the chairman of the board is here to describe the whole workings and he will give you that in his testimony. I think you can appreciate that would be the case.

Mr. WOLVERTON. Who composes the committee? That is, who composes the committee in the industry known as the Independent Oil Producers and Consumers?

Mr. MORTON. Who composes it?

Mr. WOLVERTON. Yes.

Mr. MORTON. It is a group of men with a number of directors, nine, of which I am one. The other directors are either oil producers or refiners. It has a contribution of the membership funds to support it and we might call them independent producers and refiners, we have had some small contributions and some large contributions, all of these contributions of course being voluntary—it would be difficult to say in terms of definiteness the particular ones represented, but we have some very substantial producers represented in the batch.

Mr. WOLVERTON. How many companies?

Mr. MORTON. We do not have a list of members, for this reason: The issuance of membership certificates in our organization is a question on which the corporation commissioner of this State, here we have a commissioner again, has not told us whether we have to have his permission to issue the actual certificates. The ones that have shown their interest in our meetings by their attendance at our meetings and so forth are within the membership and I would estimate it would run, oh, probably a hundred or more. Taking those in connection with the fight on the Atkinson bill who signed petitions to the legislature for themselves against that bill, it would run into some seven hundred. I cannot present a list of the members. I might bring you a list of the directors.

Mr. WOLVERTON. Do you consider those who signed the petitions against the Atkinson bill as members of your organization?

Mr. MORTON. No, I do not.

Mr. WOLVERTON. Then do not let us get confused with the thought. How many do you think would be the number who actually hold membership in the independent group?

Mr. MORTON. I think I have made it clear to you that there is no one that holds an actual certificate of membership.

Mr. WOLVERTON. How many are represented in this statistical membership?

Mr. MORTON. I estimate a hundred.

Mr. WOLVERTON. A hundred?

Mr. MORTON. Yes; I could probably list them for you.

Mr. WOLVERTON. Well, you are the secretary.

Mr. MORTON. That is right, but we didn't accomplish that for the reasons I have stated.

Mr. WOLVERTON. Do you have any book, that has all of their names in it?

Mr. MORTON. We have a book that has the names of the contributors.

Mr. WOLVERTON. Do you have a book that has the names of all the members in or do you keep it in your head?

Mr. MORTON. Our books show the contributions as I have said.

Mr. WOLVERTON. Have there been 100 individuals who have contributed?

Mr. MORTON. I am guessing that there has been, but I think it is a fair guess and I will be very glad to consult the books for that.

Mr. WOLVERTON. Did the men who contributed know that it was the Atkinson bill that was before the people?

Mr. MORTON. Yes, and they realized that this was a permanent organization.

Mr. WOLVERTON. Was the contribution based on the number of barrels produced?

Mr. MORTON. No, it was not.

Mr. WOLVERTON. If they had not made a contribution, would you have considered them a member?

Mr. MORTON. Well, sir, I might state that in a strict sense of membership, we did not have membership certificates or anything like that issued, although we will have, and our directors have taken this action that we will have certain classes of membership, and I estimate that there are at least a hundred members who have paid such a sum as would give them a certificate of membership.

Mr. WOLVERTON. What is the number on your board of directors?

Mr. MORTON. The board of directors, under the law, was set forth in our charter or articles of association, with respect to the number.

Mr. WOLVERTON. Is it an incorporated association?

Mr. MORTON. Yes, it is an incorporated association, a nonprofit association.

Mr. WOLVERTON. And yet you do not have any list of members unless they have contributed?

Mr. MORTON. For the reason, sir, if I may state once more, that it is a legal question, and upon which we are awaiting a decision as to whether we can issue certificates of membership without the permission of the commissioner of corporations, or if he determines that he has that jurisdiction, then we will get that permission and issue those certificates of membership.

Mr. WOLVERTON. How long have you been waiting for them?

Mr. MORTON. We have asked for opinions on that from them and we have not had a direct reply on the subject.

Mr. WOLVERTON. How long ago has it been since you asked for an opinion?

Mr. MORTON. I would estimate it has been some 2 weeks ago since the board of directors delegated to me the duty of bringing that matter to consummation and completion.

Mr. WOLVERTON. Was this organization in existence last November?

Mr. MORTON. Yes; this organization was organized in July by a group of producers and refiners and one or two—I can give you the names by referring to the record of those who were interested from the consumers' standpoint. We sat down as a board of directors and organized, and we went to work. We were thrown into a most hectic campaign to first effect a referendum and then conduct a political campaign, because the referendum was set up on a special election called almost immediately, and I say frankly, in the sense of issuing certificates of membership by the board of directors—

Mr. WOLVERTON. Who elected the board of directors?

Mr. MORTON. A group of men interested in this project sat down and associated themselves together——

Mr. WOLVERTON. Who were those men?

Mr. MORTON. Would you like to have the names of them?

Mr. WOLVERTON. Yes.

Mr. MORTON. Mr. J. A. Smith has been referred to——

Mr. WOLVERTON. Will you describe each one?

Mr. MORTON. Well, Mr. Smith is a businessman, a banker in this State and an oil producer. Mr. R. E. Hines is vice president and general manager of the Caminol Co., which is an oil-producing company and refinery company, having refineries in the Los Angeles Basin and in the San Joaquin Basin. Also Mr. E. Starr, who is president of the Universal Consolidated Oil Co., a company which I believe has some 6,000 barrels a day production in California. Then there was George Ring, of the Ring Petroleum Co., a very substantial independent producer, with production in this basin and in San Joaquin Valley. Mr. George R. Wilbur, who is a producer and his production is largely in this basin. Mr. — can some of you gentlemen help me out with the names of the men at the meetings? Bob, can you help me out. Yes, Mr. William Murphy, who is an attorney and represents the Wiltshire Oil Co., and myself, representing myself and the Superior Oil Co., a large producer here, and inasmuch as I was on the board and do legal work, I could say I was a representative. How many have you there?

Mr. WOLVERTON. That is seven.

Mr. MORTON. Well, there are two more, because there were nine.

Mr. WOLVERTON. Maybe you have forgotten the consumers.

Mr. MORTON. No. What is the name of the judge from Sacramento? Oh, yes, Senator Inman, from Sacramento, whom we all knew and who was very rabid on the consumer situation.

Mr. WOLVERTON. You had one rabid consumer?

Mr. MORTON. This was the group that sat down together. The consumers did not understand the problem at that time, sir.

Mr. WOLVERTON. Who was the other?

Mr. MORTON. I do not recall his name but I will get it. It is in the record.

Mr. WOLVERTON. How often does the board meet?

A VOICE. Al Jergin.

Mr. MORTON. I do not believe Mr. Jergin was a director.

Mr. WOLVERTON. Is Mr. Jergin an oilman?

Mr. MORTON. Yes, he is an oilman. We have had meetings, I would say, of the entire board of directors, or as many as could be obtained, on probably half a dozen occasions. We have selected an executive committee, of course, to conduct the campaign, and we did that because we were thrown into that.

Mr. WOLVERTON. When did the board of directors open the books for membership?

Mr. MORTON. I do not understand your question in the sense that there are no books which contain a list of members, for the reasons that I have given to you.

Mr. WOLVERTON. Has there been an election of the board of directors by the group or have they just continued to sit down again as a board of directors?

Mr. MORTON. No; you see, when you form an association under the laws of California, your articles of association contain the names of your first directors, and our articles provided for an enlargement of that number by amendment of the bylaws, which is in accordance with our State statute, and at our first meeting it was enlarged from five to nine, and the names, which I have given you, were the selections that were made at that time. There was a time set for an election, by which time we hope to have it straightened out, which will be early in June or July.

Mr. WOLVERTON. When did the legislature pass the Atkinson bill?

Mr. MORTON. In June of last year.

Mr. WOLVERTON. Was the referendum a part of the bill or was that a subsequent proceeding?

Mr. MORTON. No, you see, here is the way that works. If a bill is passed by the legislature, you have a right to circulate a petition and get a certain number of signatures within 90 days after the adjournment of the legislature. The way it works out, you have to wait until the governor signs the bill, and this time he waited until the last possible day, and then you circulate petitions, and if within 90 days you have secured sufficient valid signatures and it is then certified to the Secretary of State and various county clerks——

Mr. WOLVERTON. With reference to the time of the passage of the bill, when was this voluntary association formed?

Mr. MORTON. Almost immediately.

Mr. WOLVERTON. Then the organization was formed primarily to defeat the Atkinson bill?

Mr. MORTON. That is correct, and we are carrying it forward.

Mr. WOLVERTON. Did you advertise in the papers against the Atkinson bill as an organization?

Mr. MORTON. No; but we put our names sponsoring whatever they may have done.

Mr. WOLVERTON. What name did you use?

Mr. MORTON. The Independent Petroleum and Consumers Association.

Mr. WOLVERTON. Will you repeat it?

Mr. MORTON. Independent Petroleum and Consumers Association.

Mr. WOLVERTON. At what stage of the proceedings did the consumer get into the organization?

Mr. MORTON. We hadn't much support from the consumers, although I believe that our activities were very much in the interest of consumers and——

Mr. WOLVERTON. Well, did you——

Mr. MORTON. May I finish? We did that to get support from the consumers and I can sit down and give you a list of consumers who were not in the oil industry but were interested in the consumers.

Mr. WOLVERTON. Do you believe that the use of the words "Consumers Association" in the name "Independent Petroleum and Consumers Association," would be misleading?

Mr. MORTON. No; we had invited consumers in and expected to have a great many in.

Mr. WOLVERTON. You say you did invite them?

Mr. MORTON. Yes; and do.

Mr. WOLVERTON. How many responded?

Mr. MORTON. I have not looked over the returns that came in, but there were a number who were only interested from the consumers' angle. In fact, we had many people who joined us and made speeches against the bill.

Mr. WOLVERTON. Are they members of the organization?

Mr. MORTON. They will be as soon as we can issue the certificates.

Mr. WOLVERTON. How many do you have on the list?

Mr. MORTON. We do not have such a thing as a list.

Mr. WOLVERTON. How will you know how to issue the membership cards and who will you know to issue the membership cards to, when you do get permission to do it?

Mr. MORTON. Because they have told us they want to join. You would be surprised at the interest in this organization, and I wish to say that it was started and will be carried on with the most sincere purpose, namely, to study the oil industry for the benefit of those who are in it, and the consuming public.

Mr. WOLVERTON. I have never attacked anyone's sincerity. I only asked for the facts and as to whether or not a man is sincere——

Mr. MORTON. I cannot win an argument with you.

Mr. WOLVERTON. We do not want to argue. I was just asking the question——

Mr. MORTON. It is like before a judge, you may argue to him and with him, but you cannot win the argument.

Mr. WOLVERTON. When you are speaking to me, you are not before a judge. If you do not want to answer as to the fact, very well, but I assumed, being the secretary of an organization that has made a public appeal, that the membership would justify the name selected, and having that thought in mind, I tried to find out——

Mr. MORTON. Yes, and I have given you the facts as best I can.

Mr. WOLVERTON. It has been our experience in conducting congressional hearings that frequently people will come before the committee speaking for an organization. We are always interested in knowing the make-up of the organization and just how much importance is to be attached to the statements when made by a witness speaking for a particular group.

Mr. MORTON. May I ask your permission and your chairman's permission before you adjourn to give you a list of the people who authorized us in this matter, and whether or not they are connected with the oil industry. Now, there is no list in the sense you refer to, but I can give you the names since from its inception I have been very active in it.

Mr. WOLVERTON. The thing I am interested in is in knowing who formed it.

Mr. MORTON. I told you who formed it, sir.

Mr. WOLVERTON. I was asking it because I thought in your role as speaker, and necessarily belonging to the association, was familiar with it. I am only seeking to find out who composes the membership of the organization.

Mr. MORTON. By necessity they are people associated together in a common object.

Mr. WOLVERTON. How much money was contributed by this group under the name of the Independent Petroleum Producers and Consumers Association?

Mr. MORTON. I am going to give that in detail, but it is something less than the total expenditures I gave you, sir.

Mr. WOLVERTON. Was it \$400,000?

Mr. MORTON. No; I gave you the total figure, I know, of expenditures of \$388,000. It will be some few dollars less than that, and it is a matter of public record and I will secure a copy and make it available to you.

Mr. WOLVERTON. The figures I have before me, if your statement will bear them out, indicates total receipts of \$388,301.70, and total expenditures of \$392,454.03.

Mr. MORTON. Than you have the receipts figure from some other source? I didn't give it to you, sir.

Mr. WOLVERTON. I will be pleased to know to what extent——

Mr. MORTON. It will not tally with that because as I say it is some few dollars less than the expenditures. I gave the expenditures but not receipts, and told your chairman I would supply that later.

Mr. WOLVERTON. You said you represented the Superior Oil Co. The information before me indicates that that company contributed a total of \$128,175.75. Would that be about right?

Mr. MORTON. I would expect it would be, and I will give it to you exactly in the report. Do you have a copy of the report?

Mr. WOLVERTON. Unfortunately the only list I have is of contributions above \$1,000.

Mr. MORTON. You see, this matter is a matter of public record, as I say. It is a matter of public record here, San Francisco, and Sacramento, and I will get a copy of it so you will have it exact.

Mr. WOLVERTON. As far as I can see all the contributions were made by oil companies.

Mr. MORTON. I imagine that is certainly true.

Mr. WOLVERTON. Didn't the consumers get into the picture at all?

Mr. MORTON. They didn't put up money, sir. We fought their battle but they didn't put up money. Many people were interested in that angle, all right, without any money.

Mr. WOLVERTON. The report before me would indicate from a financial standpoint it was rather one-sided. I see in this report as to the defense of the Atkinson bill, \$1,464.10 that was contributed by the United Defense League.

Mr. MORTON. I never heard of them.

Mr. WOLVERTON. I don't imagine they got much after that small \$1,464.10 contribution.

Mr. MORTON. I am sure they wouldn't in that kind of a campaign. Is that the United Defense League?

Mr. WOLVERTON. That is the name I have in my memorandum.

Mr. MORTON. I never heard of them before.

Mr. WOLVERTON. As a matter of fact the contributor is mentioned here I think as the Jergins Oil Co.

Mr. MORTON. That is shown on what side of this bill? I am interested.

Mr. WOLVERTON. I take it they were in favor of it. I read it when I read of the United Defense League.

Mr. MORTON. That makes the situation more interesting. Might I ask what record you refer to?

Mr. WOLVERTON. The one before me.

Mr. MORTON. I mean it is not anything you care to tell me so I can check it?

Mr. WOLVERTON. Yes. I have the figures here that indicate the amount that I thought was on file. Is it necessary for you to check up now?

Mr. MORTON. Not at all. You have it and it is something on file.

Mr. WOLVERTON. Yes.

Mr. MORTON. That is all I wanted to know, sir. I will check and see. I never heard of it.

Mr. WOLVERTON. I don't know about it.

Mr. MORTON. Neither do I.

Mr. WOLVERTON. Only I didn't think the amount would shock anybody.

Mr. MORTON. No; it wouldn't make much difference in that campaign.

Mr. WOLVERTON. Now, who protects the public where you have the system that is now in effect in California, where there is a voluntary allocation based, I assume, upon the demand. Just who is the public agent in that group, who looks out for the interests of the consuming public?

Mr. MORTON. I would not say there was a public angel other than——

Mr. WOLVERTON. I didn't ask for an angel.

Mr. MORTON. I thought you asked for the public angel.

Mr. COLE. Agent.

Mr. MORTON. Agent. Oh, I am sorry, sir. I apologize.

Mr. WOLVERTON. I don't want to get anybody in the wrong category.

Mr. MORTON. We are not so bad, sir, except as the law of supply and demand may enter into the situation there is not one person sitting there that says that "I am representing the public." I take it that the estimates of the Bureau of Mines throughout the country estimates the demand, and which we know are followed in every place except possibly Illinois, and I have not studied the picture in Illinois, are reasonably well followed just as we follow them, and I imagine it is the same here as in Texas or elsewhere. It may be such a commission as they have in Texas studies the welfare of the public particularly, but based on their relation of production to the public demand it is practically the same as here. We do have an element of competition in the gasoline market here which the refiners will tell you about.

Mr. WOLVERTON. Are you of the opinion that limitation of production has an effect on the price to the consumer?

Mr. MORTON. Certainly it has.

Mr. WOLVERTON. Why then shouldn't there be some representative or agent, either State or Federal, who would have the right to act in the interests of the public when limitation of the production of oil has an effect on the price to the public.

Mr. MORTON. Because we have the law of supply and demand, and if you start trying to charge too much for gasoline in this State you will lose your gallonage right now.

Mr. WOLVERTON. Do you think the law of supply and demand prevails where there is limitation on production?

Mr. MORTON. It prevails in this State, sir.

Mr. WOLVERTON. You spoke of the Bureau of Mines.

Mr. MORTON. We take that as our basis for following. Let me make myself perhaps a little clearer. I told you that the rate of production affects the price. That was your question, sir. If you open up wide and produce a lot of oil and you refine it and dump it on the market it will decrease the price to the consumer, breaks the price structure wide open, and we know that. I would say that upon assurances and from what I have read in literature on the subject it was apparently to forestall the price of gasoline that we had that situation in Texas. But we do have the law of supply and demand here and if you were in our community several days and could drive around you will find it interesting to look at the service stations and the different prices posted for gasoline. You will find quite a variance. You will find you can buy gasoline for around from $12\frac{1}{2}$ to 13 cents and the same gravity you will find the price is jumped a little elsewhere. Your consumer is protected by the law of supply and demand in our State.

Mr. WOLVERTON. Does the fact there is a difference in price indicate he is adequately protected?

Mr. MORTON. Yes, sir; because the price, and I am sure any cost analysis which you or anyone else may conduct will demonstrate to you that these refiners in the main are receiving only a fair price based upon cost, and so forth, of production.

Mr. WOLVERTON. If the law of supply and demand is in full force and effect in California it is the only place I know of where it does prevail with limitation of production in effect.

Mr. MORTON. Well, I think it would be very interesting then for you to make that observation and see.

Mr. WOLVERTON. Then your thought is that while limitation of production does have a direct effect on the price of oil yet in California it does not, and the limitation does not destroy the natural law of supply and demand?

Mr. MORTON. Yes; and may I show you how?

Mr. WOLVERTON. Is that correct?

Mr. MORTON. Yes; and may I show you how that would work. I will give you an illustration, for example. Let us say some particular company endeavored to get 25 cents a gallon for gasoline. I can name you a dozen outfits who produce their own oil, or refine or buy it, who would not send their prices up. They would stick to what they can sell for as a fair basis, and would take the business away from the man who wants to put the price up. Hence the price does not go up.

Mr. WOLVERTON. Why is it that some of the companies, notwithstanding the effort that is made by the central committee through the umpire to fix an allotment for each well, are not in accord with it? Is that because they are not in accord as to what has been fixed as the probable demand, or is it because of a desire to produce oil and sell it regardless of the demand?

Mr. MORTON. Sir, that happens to some extent of course and the reasons which motivate people in such instances will differ, of course. Some will do it because they may feel that the basis has not been fair. That was particularly true prior to June of last year when a uniform method of allotment was adopted which will be explained to you in

detail. Others may do it because they feel their particular well should not be cut the few barrels called for, because of interior conditions.

Mr. WOLVERTON. You speak of representing the Superior Oil Co., and you have stated to the committee the entire accord that seems to exist in this State with respect to the allotment fixed by the central committee. Yet I have before me a chart going into the proration data of the Superior Oil Co. and I find that its actual production at one time or another has gone as much as 100 per cent or more over the allotment that has been fixed.

Mr. MORTON. Well, I had nothing to do with that policy and I am not at all surprised at your figures because prior to the uniform method to which I referred being adopted there were many who felt the basis of allotment was unfair. It is one step of progress we have made that will be gone into detail before you.

Mr. WOLVERTON. If an individual has a right to judge for himself whether the allotment which has been fixed by the central committee is wrong and reserves the right to change it to suit his own convenience or desires, how can you say that voluntary control is effective?

Mr. MORTON. Because it is effective, sir, and if you will wait until you have all the figures you will see it. You are going back to a period when there was disruption and dissension which was ironed out, all of which will be presented to you here.

Mr. WOLVERTON. Is there any penalty attached to violation of the allotment fixed by the central committee?

Mr. MORTON. Not as such; no.

Mr. WOLVERTON. What makes it enforceable?

Mr. MORTON. Because oil men sit down today and treat each other fairly. Let me take the Superior Oil Co., to which we have referred, to give you an illustration, and this is something that came under my own observation, sir. I represented that company in some litigation over a section of land over in the Coalinga Nose, one of our great discoveries in the past few years, and by reason of that I have seen what they have done there. There we have a voluntary agreement in that field between a number of operators, spacing wells 1 to 20 acres, and producing from those wells whatever allotment comes out from the central committee, and these wells, sir, produced many thousands of barrels per day, just opened up, and I believe it is down to 195 barrels top allowable for that field.

Mr. MORTON. Because it is possible upon fairness to all—and I would ask, sir, that you reserve as much as you can your inquiry into the statistics and such things, until you can hear the other witnesses. I hate to describe to you how our central committee functions, as I realize that the chairman of the committee is here and ready and anxious to tell you about it.

Mr. WOLVERTON. I want merely to lay before you the information I have no matter what the answer may be. I am interested in knowing the facts, and it would not be fair to you if I withheld information and did not give you the information to enable you to make such response to it as you might wish.

Mr. MORTON. I appreciate your questions.

Mr. WOLVERTON. I have before me a chart which shows the situation with respect to the Superior Oil Co. I have already related to you to what extent they have violated the allotment that was fixed by the central committee.

Mr. MORTON. And a great many other companies have done the same thing.

Mr. WOLVERTON. That will save me the necessity of bringing before you additional companies, then. But I have here a chart showing the years 1937, 1938, and 1939, up to July 1939. And certainly during that time the central committee was supposed to be effective in its operations. I have read articles published by Mr. Pemberton as the umpire, which certainly, to say the least—patted themselves on the back as to what they had accomplished. I have before me this chart which gives the situation in respect to the Superior Oil Co., and they contributed \$128,000 to defeat this Atkinson law. All of which indicates that a company, when it is not satisfied with what the central committee does, then it takes the law into its own hands. I am wondering with that condition confronting us here, how you can take the position that mere voluntary control in itself is sufficient to get the results that you are evidently seeking and everybody else thinks should be sought.

Mr. MORTON. Sir, we get these results by our voluntary conservation system, plus the fact that we have certain laws, and particularly our gas wastage law, which we think would keep any fields in control without waste, because we see it working out within allowables.

Mr. WOLVERTON. Your gas wastage law did not stop the Superior Oil Co. from violating its allotment?

Mr. MORTON. No; but it could have stopped a lot of them, including that company at Wilmington, and I complain of that as much as anything else. In this connection, if the State officials had properly acted, the Superior Oil Co. could have been prevented from increasing its allotment from what the central committee fixed in many instances here, and that is true of many companies otherwise.

Mr. WOLVERTON. I am not talking of a great and broad field, I am holding my attention to this, because I assumed you knew something about it.

Mr. MORTON. I am not an official of that company. I might tell you that I went to the company, in the manner in which I mentioned, for the purpose of working out the well spacing restriction, to which they reacted favorably.

Mr. WOLVERTON. It strikes me as very interesting that a company that has as late as within the past year, violated so atrociously, it would seem, the allotment that had been fixed by the central committee, and the same company should contribute \$128,000 for the purpose of defeating the Atkinson bill. I do not know whether that applies to other companies or not. Those are the facts on the record with respect to this one company at least.

Mr. MORTON. Are you making that as a statement or are you asking me a question that you want me to answer?

Mr. WOLVERTON. If you have any comment to make on the statement I have made I would like to hear it, and if you do not have, then for the purpose of the record we will consider it as closed.

Mr. MORTON. Knowing the situation as I do, over-production against the allotment, I know had nothing to do with the attitude of the Superior Oil Co. in fighting the bill, because you will find while they were putting up the money for the purpose of fighting that bill, they were keeping their wells on a large potential, within the limits set.

Take that particular campaign in the new fields, you will find that is the case, you will find that all of the way through, you will see they must have continued overproducing to the fullest capacity when the fight was on, and afterwards that is not the case.

Mr. WOLVERTON. I have before me in this memorandum, and I do not want to do anybody an injustice, if it is not accurate, but it indicates that the Universal Consolidated Oil Co. contributed \$40,000 to defeat the Atkinson bill, and from the chart that I have before me covering the period of 1937, 1938, and 1939, into July, it would seem that at one point this company seems to have gone nearly 182 or more percent above the allotment that had been granted to it by the central committee.

Mr. MORTON. I have told you there were others.

Mr. WOLVERTON. Can you give me the names of the others?

Mr. MORTON. Well, I do not represent that company, sir. I think that you will find the same thing was true after the allotment was adopted and during the fight on this bill, that actually while they were contributing their money to the fight they were curtailing their large wells to the allotment. So it does not follow from your statement that they were putting up that money because they wanted to continue to produce excessively, because that is not true.

Mr. WOLVERTON. I am merely stating the facts. We can draw from them such inferences as we think they will justify.

Mr. MORTON. Oh, yes. I can take the same period of time and show you where many who favored the bill likewise overproduced, and maybe that was the reason that they favored it, because they had overproduced, made their money, and then wanted to stop others.

Mr. WOLVERTON. You stated that you knew of a lot more. Do you want to give the names of the others you had in mind when you said that there were a lot more?

Mr. MORTON. What was the particular time?

Mr. WOLVERTON. This covers 1937, 1938, and 1939 up to July.

Mr. MORTON. Well, I will if you wish. We were given a chart, for example, on the Barnsdall Oil Co.

Mr. WOLVERTON. I do not remember that name offhand.

Mr. MORTON. I did not bring that into the room with me. That is one of the proponents of the Atkinson bill. We were given the Getty production.

Mr. WOLVERTON. That is what you had in mind?

Mr. MORTON. No. I had the Universal in mind, and I named that, although there were others on the other side of the fight. I think that you will find most of them have gotten religion, if I may use that expression, and have been helping very much since. I do not want to be put in the position of standing here and throwing bricks at my friends in the oil industry.

Mr. WOLVERTON. I understand.

Mr. MORTON. I am perfectly willing to give you the names of others on the other side of the political battle.

Mr. WOLVERTON. The chart I have before me now would indicate that in 1938 the Elk Hills Field had an excess production over the allotment of 29.1 percent; Kettleman North had an increase of 2.1 percent; Lakeview had 23.9 percent; Rincon had an increased production over allotment of 30.6 percent; the Ventura Avenue, 6.4 percent; the Dominguez 18 percent; Huntington Beach, new, 24.1 percent;

Long Beach, 19.7 percent; Rosecrans, Athens, 89 percent; Santa Fe Springs, 9.8 percent; Wilmington, 47.3 percent. I have the figures also for 1939, and calling them in the same order, they show an increase of 35.1 percent: 2.1, 13.9 percent, 25 percent, 15.4 percent, 13.4 percent, 25.2 percent, 12.3 percent, 34.8 percent, 6.9 percent, 14.1 percent.

Not a single one of them except the Kettleman Hills, North, even approximated what was allotted. Percentages of increase run all the way from 2 percent in the Kettleman North in 1939—2.1 percent in 1938, to 89 percent in the Rosecrans, for Rosecrans.

Mr. MORTON. Do you want me to respond to that?

Mr. WOLVERTON. The point that I am making is this: If this central committee, this voluntary cooperation of oil-producing companies, is so effectual as to gain your favorable opinion so that you recommend it to us as a method of production control that makes unnecessary either Federal or State law, how do you account for the fact that there seems to be these violations?

Mr. MORTON. Shall I make a response to that?

Mr. WOLVERTON. Yes.

Mr. MORTON. I have given you authentic figures on allowable production for the last year, and taking that excess over the entire State, you will find it is less than 3 percent. I do not know the source of your figures. I have never seen them. I do not know where you got them. I do not know who compiled them. But I do know my figures are accurate. And a reconciliation between the two obviously cannot be made until I have studied your figures.

Let me say this—because I see that Mr. Chairman is about ready to adjourn, he has turned out his light—the Kettleman Hills situation has been a most sore spot in the industry and you will hear more on that. That situation has been straightened out, I believe, or largely so, and that is one reason that we are functioning better.

But before we go, sir—I take it, Mr. Chairman, that you are about to adjourn until tonight—I have a slip of paper here and I wanted to correct a statement of the Governor's. The indictments to which he referred as having been recently returned have nothing to do with the production of oil—or the producers of oil, rather. Those indictments were against certain refining companies and related to alleged violations of the Sherman antitrust law with respect to alleged fixing of prices of retail gasoline, I believe. It had nothing to do with the production of oil. I was asked by someone in the audience to make that correction. Apparently some producer did not want to be maligned.

Mr. COLE. Mr. Morton, there might be some additional questions at 8 o'clock. We will recess until 8 o'clock.

(An adjournment was taken to 8:00 p. m. of the same day, July 16, 1939.)

PETROLEUM INVESTIGATION

TUESDAY, JANUARY 16, 1940

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE OF THE COMMITTEE ON
INTERSTATE AND FOREIGN COMMERCE,
Los Angeles, Calif.

Mr. COLE. All right, gentlemen. The committee will come to order, please. Mr. Morton.

Mr. MORTON. Yes, sir; Mr. Chairman and members of the committee. I was asked to put this contrivance around my neck. [Referring to microphone.] I don't know whether it is because I am about to be hung or to help others here. It has been knocked on the floor twice since being put up here so probably it is out of order. Let us see if they can hear me without it. I will try to make them hear me.

I wonder before we resume if I might supplement one matter we were talking about this afternoon and that is the possible implication from some questions that the Superior Oil Co.'s contribution to the referendum campaign might have been because they desired to overproduce. Someone has supplied me with figures showing the percentage of overproduction of that company for a longer period than you referred to, and starting in June we find that overproduction is two and a fraction percent whereas previously it had been twenty-some percent, and it continues at a very low rate for the balance of the year, and I am informed one reason that there would be always some overproduction of that company would be they are constantly bringing in new wells and establishing the potentials of those new wells, and that would result in that situation. The same is true of Universal, their excess production according to the report furnished me from the umpire's office dropped materially in June of last year, and as I stated, gentlemen, I do not think it is a fair implication to say that those two companies were putting up money for this bill in order to overproduce. They did just the opposite, and I know it was a case of the uniform method of allotment which will be described to you by the next witness.

I am ready, gentlemen, for any further questions.

Mr. WOLVERTON. I do not wish to prolong the discussion, but in view of the fact you have opened it I feel I should call your attention to the fact that the difference in percentage between production and the allowable was definitely changed at the time the Atkinson bill was before the legislature. That applies not only to the Superior Co. but the others as well. The inference might be drawn from it, that with the pendency of the bill it was thought advisable to keep the production and allotment more nearly in accord than it had been previously.

Mr. MORTON. If that be the answer, and I do not believe it hardly is, then the introduction of the bill certainly served a good purpose, but I certainly think you will find otherwise.

Mr. WOLVERTON. Otherwise, the difference between production and allotment would have continued if the bill had not been introduced?

Mr. MORTON. It has continued without the bill, sir.

Mr. WOLVERTON. Do you have the figures that will show that?

Mr. MORTON. Oh, yes; they will be all presented to you in due time. Anything else, gentlemen?

Chairman COLE. I think that is all, Mr. Morton. Thank you.

Mr. MORTON. I want to thank you gentlemen for your courtesy, and I am sure that all of us here appreciate the fact that the committee has come this far to hear representatives of this industry. Some of us had expected to be called upon to make the trip East, and of course you have saved us a lot of trouble.

Mr. WOLVERTON. Mr. Morton, I gathered from your remarks when you first spoke to the committee that there was an intention upon your part to make some reference to the suggestion that there was a violation of the antitrust statutes by the agreement among producers to limit production——

Mr. MORTON. Oh, yes; you made that possible suggestion, I believe, in talking to the Governor, wasn't it? You asked the question, I believe, in talking to Governor Olson of a possible violation of the antitrust laws in connection with any voluntary reduction we might have by way of agreement. I do not want to offer an opinion unsolicited, but if you care for my opinion, I have one.

Mr. WOLVERTON. I thought it was your intention to make some reference to it.

Mr. MORTON. I did. These indictments, sir, were not of producers, or because of the production of oil.

Mr. WOLVERTON. I know that.

Mr. MORTON. Well, the Governor did not know it, and I wanted to clarify that and on the question of the violation of the Sherman antitrust law, for what my opinion may be worth, and I have given it some thought, I do not believe there is anything in our method of production or our central committee which would be a violation of those laws, but I know you are not interested in my legal opinion on the subject.

Mr. LEA. Mr. Chairman?

Chairman COLE. Mr. Lea.

Mr. LEA. Mr. Morton, you referred to a court decision holding a pipe line is not a common carrier. Is it convenient to give us a reference to that?

Mr. MORTON. It is in 163 Cal., I believe; I will hand it to you in the morning; I am not one of the attorneys who can carry decisions in their head, Associated Pipe Line against somebody. I will hand it to you in the morning.

Mr. LEA. May I ask if that question has ever come up?

Mr. MORTON. No, it has not. There has been no suggestion of it until you suggested it today, and I might say that we have had lots of Federal investigators out here on such questions for some years and they didn't bring it out, but I had it suggested to me last spring and I went into it then with the knowledge that I had and was very much of the opinion that there was nothing within the process that could have been that description. Of course, I may be wrong. Of course, I often have been in legal matters.

Mr. WOLVERTON. I have seen cases where prosecutions were commenced and it seemed to me there was less than in the case that we have here.

Mr. MORTON. We know, unfortunately, that there are certain groundless prosecutions, and there is no escape from it, because minds differ.

Mr. WOLVERTON. I am not speaking of groundless cases.

Mr. MORTON. By "groundless" I mean held to be groundless by courts in the ultimate decisions.

Mr. WOLVERTON. I had in mind cases where the defendant had agreed. It seems to me there is not a great deal of difference between some of the cases that I have come in contact with and this particular instance.

Mr. MORTON. Anything further, gentlemen?

Mr. COLE. I think that is all, Mr. Morton.

Mr. MORTON. Thank you.

Mr. COLE. Who is the next witness, Mr. Morton?

Mr. MORTON. I believe Mr. Vander Leck, who is chairman of the Central Committee of California Oil Producers, and he should be our next witness, I think, and that is the general understanding of all people present.

STATEMENT OF LAWRENCE VANDER LECK, CHAIRMAN, CENTRAL COMMITTEE, CALIFORNIA OIL PRODUCERS

Mr. VANDER LECK. Mr. Chairman, and members of the committee, my name is Lawrence Vander Leck. I am chairman of the Central Committee of California Oil Producers, and vice president of the Fullerton Oil Co., an independent company, which has produced oil in California for 40 years. I have been engaged in the production end of the oil industry for some 25 years. Together with L. L. Aubert, chairman of the allocation committee of the central committee, and Mr. J. R. Pemberton, oil umpire for the central committee, and I am trying to give you a picture of California's method in obtaining conservation and the elimination of waste and—

Mr. COLE. Mr. Morton, does your testimony include all the independent consumers' association desires to present?

Mr. MORTON. Yes; that was one reason that I prolonged it. You may hear from any of the rest that you desire, but they asked, in view of the time that I was consuming, that I appear for Mr. Hines and Mr. Fenton.

California has no State regulatory body in regard to the production of oil, but it has a law which prohibits the waste of gas; conservation, and proration are obtained through a voluntary committee of operators known as Central Committee of California Oil Producers. We are authorized by this committee to present here the facts, history, functions, and operations of the central committee and its conservation program. In order to save repetition and bring the facts clearly before you, with the permission of your committee I should like to present our picture in the following manner:

I will first give a brief outline of the situation dealing with the history of our curtailment efforts, our aims, the make-up of the voluntary organization, and the results obtained to date. Mr. Aubert will present the details of how we allocate the oil among the

various operators, and the conservation results obtained by these methods. Mr. Pemberton will explain the duties and functions of the oil umpire's office.

There will be also, in addition to our delegation, a number of independent operators who will give in detail the value of the present voluntary curtailment system.

Voluntary curtailment started in April 1929—I might ask the committee here if, in view of the fact that there are others to follow who will review the matter in more detail, I should like the privilege, when questions are asked, of referring them to the member of our delegation who has that particular subject to discuss. This is in order to save repetition?

Voluntary curtailment started in April 1929. All curtailment efforts in California have been voluntary except for the period of the N. I. R. A., which was from September 1933 to June 1935. The initial start was due to wide-open production in the highly prolific and competitive fields in the Los Angeles Basin, notably Santa Fe Springs and Signal Hill, which resulted in piling up in storage of over 187,000,000 barrels of petroleum products. When I refer to storage I am referring to all petroleum products. A fair working storage we estimate today to be about 140,000,000 barrels. These first efforts and those which followed up to 1936 were directed to restricting production to demand and liquidating the excessive surface waste of too large a storage. These efforts in an over-all picture were successful, production being reduced from 878,000 barrels daily in August 1929 to 532,000 barrels daily in January 1931. By the end of 1931 production fell to 502,000 barrels daily, and in the 2½-year period storage dropped 14,000,000 barrels. In 1932 production averaged 483,000 barrels daily and storage was reduced 1,400,000 barrels. The period from 1929 to 1933 was characterized in its method of procedure by having altogether five different committees, which functioned at various times, in charge of the curtailment program, and four different umpires. In the beginning the curtailment committee was appointed by those interested in the program, comprising the major oil companies, together with the larger and more substantial independents, and the burden of curtailment was borne by these. At various times the committee was made up solely of independent operators—the major companies not participating in the functions of the committee, but bearing a substantial burden of the curtailment. There was no uniform method of procedure, and many fields and a large percentage of the operators did not participate at all in the curtailment efforts. However, at the end of the period, about 1933, it became apparent to those who had made a study of the situation, and to many operators, that curtailment was paying dividends other than the elimination of excess storage, in that certain fields which were curtailing and observing proper gas-oil ratios had arrested to a marked degree their decline, and it was evident that they would obtain a greater ultimate recovery in contrast with the previously wide-open fields and production methods.

In June 1933 a committee was organized on which the present system is based, that is the State was divided into districts and each district elected a field committee by the individual vote of the operator. The various field chairmen forming the central committee, together

with the oil umpire, was the governing party. Both major and independent operators participated in the personnel of this committee. In September 1933 the petroleum administrator, the Honorable Harold L. Ickes, under the N. I. R. A. took over and appointed the central committee as a Federal agency. During the N. I. R. A. the central committee acted largely as an advisory body, the petroleum administrator centering the authority in his own hands. The over-all picture was good. Production was brought down to 480,000 barrels daily and some 30,000,000 barrels of oil was taken out of storage. The average overproduction above the authorized schedule was 2 percent. In May 1935 the N. I. R. A. was declared unconstitutional and there was a question of doubt as to who should carry on the curtailment program in California, and from June 1935 until February 1936 three different committees in addition to the central committee, tried to straighten out the situation, without success, and the central committee finally suspended operations. Production went up from 495,000 barrels daily to 680,000 barrels daily and storage was increased by 15,500,000 barrels. In January 1936 the operators of the State called upon the central committee to resume its functions, which it accordingly did, and production was reduced in 2 months from 680,000 barrels daily to 566,000 barrels daily, and 3,500,000 barrels were withdrawn from storage during 1936.

The present central committee in reality started in January 1936 and has functioned continuously from that time, with little or no change in personnel or organization. As it is now constituted, the central committee is organized as follows: The State is divided into 28 districts; in some cases a district will consist of several fields and in others of only one field, depending upon the size of the field. We try to keep an average of approximately 22,000 barrels of allotment per district. In each district a field committee is elected, varying in size from 5 to 22 members each, depending upon the number of operators in the district. Each operator in the district has one vote, regardless of his production in barrels. The chairman of the 28 district committees constitute the central committee, together with three representatives at large from the three geographical divisions of the State who are elected by the central committee itself. The central committee is the governing body in regard to conservation and proration.

The central committee has a chairman and employs the oil umpire. It has various standing committees, the most important of which is the allocation committee of which Mr. Aubert is chairman, and whose function is to calculate and recommend the allocation of oil to the various wells and fields, and study methods for the elimination of waste.

Elections are held annually. The committee meets regularly once each month and at such other times as conditions warrant. At its regular meetings the central committee hears the reports of its subcommittees and its chairman, sets the State quota for the ensuing month, and instructs its chairman and subcommittees as to the future work. It is the duty of each committeeman to report back to his field committee and the operators within his district all pertinent information relative to the actions of the central committee.

The committee is supported by a voluntary assessment on production which amounts to $1\frac{1}{4}$ mills per barrel, which covers the

expenses of the committee. Eighty-four percent of the barrelage of the State pays the assessment, the 16 percent who do not pay consist principally of small stripper well operators who are not asked to curtail. We have 46 employees, and this is supplemented from time to time by drafting expert engineers from the various companies to help us work out our special problems. We have a complete and thorough record of statistics relative to the production of oil in California, which includes the number of wells, the size and depth of the wells, production, potential, amounts of gas produced, percentage of water, and we are now building up a record of bottom-hole pressures. Our production figures by wells are available to us daily. These records date back for some 10 years.

The figures of the United States Bureau of Mines are used in general as a basis for our State quota. We have a flexible organization and allocation formula, and while the majority rules in the committee, we endeavor and have succeeded in nearly all cases in having practically a unanimous consent on our decisions. It is our aim to reduce production to demand, to eliminate excessive storage and subsurface waste in the individual fields and wells, to consider the present potential of 2,500,000 barrels, the present market demand of 625,000 barrels daily, and to give to each operator in the State his equal share based on his ability to produce relative to the other wells in the State. This committee at no time has anything to do with marketing, sales, or prices.

In 1937 production from the first of the year until September averaged 631,000 barrels daily and during the same period 10,000,000 barrels were withdrawn from storage, leaving 123,000,000 barrels of petroleum products in storage. Beginning with September oil started running to storage and continued until April 1939; during this period 40,500,000 barrels were run into storage and the production averaged 647,000 barrels daily. This was due largely to the unprecedented discovery of large and prolific fields in the San Joaquin Valley, and Wilmington and Montebello in the Los Angeles Basin. A total of some 24 fields for a potentiality of 1,298,800 barrels daily were discovered. The run into storage was aggravated by reduced demand.

Unlike similar situations prior to 1929, these new fields were developed in an orderly manner, drilling was retarded, wells were properly spaced, and the average production from these fields was only approximately 10 percent of their potentiality. Our records show that in these flush fields there was practically little or no waste.

Beginning with April 1939, although the potentiality of these fields was still increasing, we were able to start reducing storage, and in the period from April until December 31, 1939, some 10,500,000 barrels were withdrawn from storage. Our production for December 1939 averaged approximately 608,000 barrels daily and during this month 536,000 barrels were withdrawn from storage. At the same time our potential in the State of California indicated that we could produce some two and a half million barrels of oil daily. This figure serves to indicate our degree of curtailment and hence the elimination of waste.

Our chief problem today is to reduce still further the drilling of new wells, in which we have had marked success. In this we are not hampered by the operators but the chief demand for new drilling

comes from the land and royalty owners and the small promoter. This group sometimes fails to realize that the excess drilling is an economic waste, and at present the efforts of the central committee are directed to educating this group and still further reduce the number of new wells each month. At present the overproduction above our schedules is only 10,000 barrels daily, this being 1.6 percent excess, which is indeed an excellent record. It is also some 17,000 barrels daily below the present utilization. This condition gives us an opportunity to reduce the storage which was accumulating during 1938, and which we have now reduced by some 10,500,000 barrels. This gives us a present storage of approximately 152,000,000 barrels. In the past the central committee has been faced with various problems concerning its program and has been able to solve them, and we are confident that we will be able to meet any that should confront us in the future.

Production practices designed to eliminate waste are constantly improving, and in California we are making full use of these practices. I feel that under our present knowledge of these methods we have eliminated subsurface waste in California. There are no fields in the State in which the rate of production is such that it is dissipating to any degree the energy of the reservoir so as to cause a less ultimate recovery. There is no State which has a better record than California in eliminating subsurface waste, and further improvement can come about only by further knowledge and not by the passage of a mandatory law.

In closing I would like to contrast the years of the early thirties with today. Then we had drilling where as many as four wells were located on 1 acre. Wells were brought in and produced at their maximum potential. The flowing life of these wells can be measured in a few months. Today we have well spacing in the new fields of, in a few, one well to 5 acres, and in most instances one well to 20 acres, which has been arrived at by voluntary cooperation and agreement between the landowners, royalty owners, and operators. The new fields are under constant and heavy curtailment, with the result that after some 3 years a large portion of these wells are still flowing.

Today in our organization of the central committee we have the cooperation of practically all the operators, both majors and independents being fully represented. This was not always true, but we have accomplished this after some 10 years of constant work, in which the oil-producing industry has contributed its full share.

The central committee has no power of enforcement. The strength of this voluntary program of conservation lies in its democratic make-up, its absolute honesty and fairness in its method of allocation, and in its protection of the small marginal well. These principles and methods have gained for it the cooperation of the operators and the people of the State of California.

At a meeting of the central committee held on January 12, 1940, a resolution was passed which stated that the central committee feels that the State of California would not be benefited by any Federal control bill such as the proposed House bill 7372.

Mr. COLE. Take a concrete case: How does your group function in prorating to the wells of a definite field the daily production? What do you take into consideration? State the mechanics of it.

Mr. VANDER LECK. The mechanics of it?

Mr. COLE. Yes; the mechanics of it.

Mr. VANDER LECK. Mr. Cole, Mr. Aubert can give you those mechanics. He is going into that in detail, into the mechanics of how we would allocate the individual wells, just how we would do it. He has that data and he is the next speaker.

Mr. COLE. How long have you been building up the record of bottom-hole pressure in the State?

Mr. VANDER LECK. Building up the record of bottom-hole pressure has been going on—well, we started 8 or 9 months ago, if I am correct. We went into it thoroughly, not only our committee, but we drafted the best minds from the various companies and went over it thoroughly, and we put out the system under which we are operating, and there again Mr. Aubert will have to go into the detail on that. That is a part of his functions.

Mr. COLE. Any questions by the committee?

Mr. LEA. Mr. Chairman.

Mr. COLE. Mr. Lea.

Mr. LEA. I would like to inquire how California has maintained her relative production compared with the total production of the Nation.

Mr. VANDER LECK. The relative production, in that regard, I have not any figures on that, because I do not know what the production has been in Texas and the other States. I cannot say.

Mr. LEA. Very well. That is all I wanted.

Mr. COLE. All right, Mr. Vander Leck.

Mr. WOLVERTON. What is the basic reason for your association seeking to control production?

Mr. VANDER LECK. The basic reason for our efforts started out, Mr. Wolverton, where we had a wide-open production. We piled up an excessive storage. We had a potential here that was far in excess of the demand, and we wanted to give—that is the idea, as I said before—to give unto each operator in the State his fair proportion of that.

Mr. WOLVERTON. Why did you seek to hold your production to what you considered to be the demand?

Mr. VANDER LECK. That was according to the United States Bureau of Mines figures—

Mr. WOLVERTON. Why did you think it advisable to keep your production within the demand?

Mr. VANDER LECK. Within the demand?

Mr. WOLVERTON. Yes; or within what you considered to be the demand.

Mr. VANDER LECK. We felt that was the proper thing to do, that, as I said, after the production equaled the demand—

Mr. WOLVERTON. Why?

Mr. VANDER LECK. If we exceeded the demand we were putting it into storage, putting into storage a tremendous amount of oil, just wasteful product—wasteful methods, rather, I should say, when it goes into storage. There is a certain amount that evaporates. The best place to store oil is in the ground, and take it out when it is necessary.

Mr. WOLVERTON. Why would the company produce more than it has a demand for, which you say necessitates it being placed into storage and resulting in a loss, why would the company produce more?

Mr. VANDER LECK. Why would the company produce more? I do not know.

Mr. WOLVERTON. In other words, you want limitation of production so as to save waste or surplus. Why wouldn't the economic penalty attached to the production of more than a man could sell be sufficient in itself to keep him within the bounds of demand?

Mr. VANDER LECK. Probably would.

Mr. WOLVERTON. Then why did you have an organization to do that?

Mr. VANDER LECK. To divide up the supply equally. I can readily conceive where several fields in California if produced wide-open could supply the demand and the rest of us would have no place in the picture. We try to divide up the market demand based on the Bureau of Mines' estimate, which we have.

Mr. WOLVERTON. Were you fearful of the effect a surplus would have upon price structure?

Mr. VANDER LECK. Mr. Wolverton, in producing, production to demand unquestionably to a certain extent does affect the price structure. There is no question about that.

Mr. WOLVERTON. I am glad to hear you speak so frankly.

Mr. VANDER LECK. But that is not all. There are ramifications in the marketing industry into which we do not go, that I believe, in my opinion, control. Now, under this voluntary system we cannot have a shut-down, bring supply below the demand. It might be so where it was mandatory or everybody forced to do that, but under this voluntary system I don't believe we could do so.

Mr. WOLVERTON. Then your real purpose was to stabilize price?

Mr. VANDER LECK. That is a part of it, and the other in my own mind and in the mind of the central committee as important, was to give each one of us our fair share of the output.

Mr. WOLVERTON. In stabilizing prices at a fictitious level—I say "fictitious" because it would seem to me to be such unless there was a free working of the law of supply and demand—what would be the effect as to the consumer?

Mr. VANDER LECK. My opinion is this: That the law of supply and demand worked here because at no time did that bring down production where it was at such a point that it created a shortage of oil. People were free to produce and I believe the law of supply and demand was in full action.

Mr. WOLVERTON. That is a very simple principle. Isn't it generally recognized that the more there is of a commodity the cheaper the price will be to the consumer?

Mr. VANDER LECK. Possibly, yes.

Mr. WOLVERTON. Then it would seem to limit the amount that would be available to the consumer; the result would be necessarily a rise in the price to the consumer?

Mr. VANDER LECK. In my opinion, no, because I believe we at all times had sufficient oil to meet the demand. When you go above meeting the demand, you are simply putting more oil in storage and that constitutes a waste.

Mr. WOLVERTON. Demand seems to me to depend to a very large extent upon the price. If gas and oil were cheap in all probability there would be a greater demand for it than if there was a fictitiously high price charged for it, and when you say the demand was supplied, it may be that the demand was supplied at the price at which it was stabilized, but my point is by the mere stabilization and the limitation of production you have fixed a fictitious demand at the price at which you thought would get the best results.

Mr. VANDER LECK. Mr. Wolverton, as I said before, the central committee does not enter into prices, marketing or sales; we did just the one thing.

Mr. WOLVERTON. It might not be necessary to do that. When you limit the amount of a commodity that is available, then you can let the law of supply and demand take its course to a very large extent, because the price will depend on the amount of supply that there is for the demand. Is there any doubt at all that the real purpose is to stabilize the industry?

Mr. VANDER LECK. Mr. Wolverton, as we have gone along here, I believe, in the early days when we had that excessive storage that I pointed out to you, and also as I pointed out to you since that time, a large function of the central committee has been to eliminate waste. We are all good businessmen. We want to get every last barrel of oil out of the ground. If we don't, why we lose that much. Now, I feel that a great part of the work of the central committee has been to eliminate that waste, and as I say—as I see it, when we supply the market demand we are in effect stabilizing the price to a certain extent.

Mr. WOLVERTON. When you speak of a waste of oil, you mean an amount that is in excess of immediate demand?

Mr. VANDER LECK. That is right.

Mr. WOLVERTON. Why does that become waste? It is not destroyed.

Mr. VANDER LECK. No, it is not destroyed.

Mr. WOLVERTON. If you were speaking of vegetables you produced, and there was no immediate demand, then, of course, the natural consequence would be wastage because of the physical character of the commodity, but that is not true as to oil.

Mr. VANDER LECK. It is wastage to this extent, it goes into storage; the best place to store it is in the ground; you have to put money into building storage. Possibly in the ultimate that is going to raise the price to the consumer. That is because the operator has to build more storage and pay cash for it. There are a certain amount of losses, and even from the producer's angle, I feel it should be kept in the ground.

Mr. WOLVERTON. They are all elements that would necessarily have to be taken into consideration, but if you produce more oil than there is a demand for, you soon know, as a producer, that you have oil that you cannot dispose of, and then you curtail your production. That seems to be the natural way of supplying demand, but, by limitation of production by agreement among producers you fictitiously fix what the production is to be. You might be right or wrong, as to what the demand is to be, but you attempt to fix it at what you think is a reasonable demand for the oil. I am asking you whether or not you have not thereby necessarily fixed the price for the consumer?

Mr. VANDER LECK. We have to a certain extent.

Mr. WOLVERTON. If that be true, why isn't a consumer entitled to some representation on any board or body that fixes the limit of production?

Mr. VANDER LECK. If the State would like a consumer on the committee, I am sure our members would like to have him there. This is a voluntary thing—

Mr. WOLVERTON. Maybe the association would not agree with you about that as readily as you think it would.

Mr. VANDER LECK. This is purely voluntary. Nobody has to do anything.

Mr. WOLVERTON. I understand that—

Mr. VANDER LECK. But I feel—

Mr. WOLVERTON. Many times associations of men have been entirely voluntary but it hasn't been in the interest of the public, what they have agreed between themselves to do. Oil is a great natural resource and it is irreplaceable and for that reason should be conserved. I am thereby putting control of production on a much stronger basis of justification than you have put it before, but, it seems to me that inasmuch as it affects the consumer's interest so vitally he has a right to have some representation in any limitation production of any vital commodity, especially as important to his welfare as oil.

Mr. VANDER LECK. Well, I tried to make it plain to you that in California we are conserving our oil. I think that our record in that is good and that it will be available in years to come to the consumer and the State. We have gone along and have advanced in that way, and we are today not willfully wasting that oil.

Mr. WOLVERTON. Your conservation statute only applies to gas; isn't that so?

Mr. VANDER LECK. Yes.

Mr. WOLVERTON. Why aren't you willing, if you are so anxious to conserve, to go as far as other States have gone?

Mr. VANDER LECK. We have come along since 1929 in the operation, and we have felt that we could do a better job of conserving; that is, the operators themselves. These conservation methods have been developed by the operators themselves. There is a feeling among the operators that they can best do that themselves.

Mr. WOLVERTON. Let me read to you from a magazine article by Mr. J. R. Pemberton entitled, "Ten-year Record of Voluntary Cooperation in California," in which he says:

There have been only two periods, 1935 and 1938, during which production got out of hand and stocks were built up to a high point. During this 9½ years prices for crude have been reduced only three times, in the middle of 1931, 1933, and the end of 1935.

Would not that indicate to you, as it certainly does to me, that he, as your umpire and spokesman, was rather congratulating himself and your organization that in a period of nine years and a half there had only been three periods, 1935 and 1938, during which production got out of hand, and only three times, in 1931 and 1933, and at the end of 1935, that the price was reduced? Wouldn't it seem from that to be the purpose of your organization to see that there would be no drop in prices at any time as a result of too great production?

Mr. VANDER LECK. Naturally the producers wanted a fair price for their commodity.

Mr. WOLVERTON. Is that the purpose for which you have your organization?

Mr. VANDER LECK. Mr. Wolverton, I said that that was one of the results of it, but I want to emphasize this: The main purpose of our organization, as I said in my talk previously, was to get or give everyone an equal and fair share. Being a voluntary organization, we cannot manipulate the market or fix the price. That is beyond our control. I say that to you very frankly; it will break over without our efforts. So I do not know how in a voluntary system we can do it.

Mr. WOLVERTON. It would seem to me from the quotation that I just read—

Mr. VANDER LECK. I am being frank with you, Mr. Wolverton. Our action in bringing supply and demand within reasonable distances of each other has an effect on the stabilization of the market.

Mr. WOLVERTON. You have said that there was no intention on your part to fix prices, and yet this quotation that I have given you from the article by Mr. Pemberton would indicate that because of your limitation of production and the efficient manner in which it had been carried on, there had been no reduction in the price of crude except three times in the years which I have mentioned. Wouldn't that seem, without making any effort or taking any action to fix prices, that the limitation of production had been sufficient in itself to stabilize the price?

Mr. VANDER LECK. That probably followed, Mr. Wolverton.

Mr. WOLVERTON. That being the case the consumer's interest is affected. The consumer, it would seem to me, has an interest, that entitles him to right of representation. How he can get that representation except by legislation, either Federal or State, it is rather difficult for me to understand. Tell me: Suppose your central committee found it impossible to fix allotments that would be respected by the industry, then what would you do to make the allotments effective?

Mr. VANDER LECK. There is nothing we could do. It is purely voluntary.

Mr. WOLVERTON. You have spoken of it as being a very desirable thing, and for that reason you have entered into this voluntary and cooperative effort.

Mr. VANDER LECK. Yes.

Mr. WOLVERTON. If that were not possible the advantages would still exist, would they not?

Mr. VANDER LECK. Yes.

Mr. WOLVERTON. Would you want State regulation to make possible what you have been unable to do by your voluntary organization, or would you prefer Federal legislation?

Mr. VANDER LECK. I think we would try to work it out among ourselves. It has been the intent here among operators that they would prefer to work this thing out among themselves without any regulation.

Mr. WOLVERTON. That may be true.

Mr. VANDER LECK. Yes.

Mr. WOLVERTON. I can readily understand why you would prefer that method. That is looking at it from your own individual stand-

point and forgetting entirely the consumer. But I am presenting to you a case where your voluntary organization, for some reason or other, should fail to be effective. Suppose some disagreement happened in the course of months and the organization should cease to be effective. Would you then knock at the door of Congress for legislation that would enable you to have limitation of production for conservation purposes or stabilization purposes, or would you knock at the door of State legislature for action, or would you just let it go by without any action.

Mr. VANDER LECK. I don't know what the operators would do, whether they would knock at the door of Congress or the State, or try to work it out among themselves. I could not answer that. That would have to be up to the operators.

Mr. WOLVERTON. Do you think there is anything in the character of natural resources that gives the public a right to have some say as to what shall be done concerning the production and use of such?

Mr. VANDER LECK. I think that if people who are producing the natural resources, endeavoring to make a monopoly and to cause prices to go up, I think when that condition arises, then that would be so.

Mr. WOLVERTON. That condition does not exist here, does it?

Mr. VANDER LECK. It does not exist.

Mr. WOLVERTON. What would you suggest as a means to prevent it?

Mr. VANDER LECK. To prevent the price going up to the consumer?

Mr. WOLVERTON. Yes.

Mr. VANDER LECK. If it did, then we should have Federal investigation or State investigation, or something of that sort.

Mr. WOLVERTON. What about Federal or State legislation?

Mr. VANDER LECK. Yes; but as I say, that condition, to my mind, has not occurred to date.

Mr. WOLVERTON. Well, you do have a great natural resource here in the form of oil, as do a great many other States. We think we have a great natural resource in our State. We have the Delaware River that runs between Pennsylvania, Delaware, and New Jersey, a great natural resource. We do not have control over it. It is open for the benefit of the Nation. Do you think there is any similarity between that and your situation here?

Mr. VANDER LECK. No; frankly I do not.

Mr. WOLVERTON. Yours is in private hands and you seek to control it in a way that is for your own interest and hope it won't be harmful to the consuming public, the general public. New Jersey might desire that the Delaware River be operated in a way we would think would be desirable, but I think we would have great difficulty in upholding an exclusive interest in it because we happen to be located on its shores, as you happen to be in a State in which there is oil. In other words, it seems to me there are some considerations that create a national interest even though it may be a resource of a single State. I am trying to find out from you where, in the event your organization should fail and cease to be as effective, you think the power should lie and to what extent it should be placed in either Federal or State's agencies to be enforced.

Mr. VANDER LECK. Mr. Wolverton, if it fell down naturally it would have to be either taken up by Federal or State authorities. Now, as to which should be done, I don't know. I am simply chair-

man of a committee here. Whether it would be Federal or State, I could not say.

Mr. WOLVERTON. I wonder if you have my point clearly. Suppose New Jersey and Pennsylvania would throw a dam across the Delaware River so as to shut it off as a navigable stream, except that the dam would let just so much water go over; isn't that similar to what you are doing? You are limiting what shall come out of the underground reservoirs for the benefit of the Nation at large and you assume the right to fix that amount regardless of the national interest.

Mr. VANDER LECK. I don't think, Mr. Wolverson, that we have endangered the national interests.

Mr. WOLVERTON. What proportion of oil that you are producing goes to Japan at the present time?

Mr. VANDER LECK. Out of the, say, 600,000 barrels we are producing here today, 608,000 barrels, the amount that goes to Japan varies from some 40,000 barrels to as high as maybe 120,000 barrels. It averages about 70,000 barrels.

Mr. WOLVERTON. What is it now?

Mr. VANDER LECK. It has been averaging around seventy to eighty thousand barrels.

Mr. WOLVERTON. As a matter of fact, isn't it very much higher than that?

Mr. VANDER LECK. In the last 2 weeks I think it was higher, but that is the average.

Mr. WOLVERTON. Why is that?

Mr. VANDER LECK. I don't know; the Japanese are buying, they want the oil.

Mr. WOLVERTON. Do you think you are serving our national interest, or, conserving a natural resource for the welfare of this Nation, when you sell as much as Japan will buy?

Mr. VANDER LECK. Well, Mr. Wolverson, I assume that different nations are exchanging commodities. One nation has one thing and another nation has another. They are buying and selling. Japan is our natural market and we are at the present time, naturally selling to them, when they want to buy oil; we buy silk from Japan. I see no reason why we should not sell oil to them.

Mr. WOLVERTON. You do not place silk in the same category as oil as a natural resource that is irreplaceable, do you?

Mr. VANDER LECK. No; I do not.

Mr. WOLVERTON. Well, I am speaking about an irreplaceable resource of this Nation that plays a vital part in our national defense and our national welfare. You were speaking a few moments ago from the standpoint of a desire to conserve the natural resource. What is there to your desire to conserve a national resource when at the same time you sell it in such quantities as Japan demands or is willing to pay for?

Mr. VANDER LECK. We have built up this industry in part in our selling around the edges of the Pacific Ocean. That is our natural market, and when we cut that back we are going to throw people out of work. We have built up this industry which has helped add to the wealth of the State of California and the Nation, and I do not feel that we are doing anything wrong in exchanging commodities, in selling them. You have to sell your products. Different nations sell

different things. As far as running out of oil, that has been a question that has gone on here—I have been in this oil business for 25 years, and I remember back when I first started out that I helped make estimates that we would run out of oil right now, would not have any more oil here, and those estimates were made in good faith and still we have more oil here today than we had then, and, after all, I think Mr. Pemberton is going to bring this out more in detail—we do not recover all of the oil that is down there in the ground under the best production methods. There is probably at least 50 percent that stays in the ground no matter how good our production methods are. When we get to that point when we cannot have flowing wells, it is my opinion there will be some engineer who will be smart enough to find out how to get that out.

Mr. WOLVERTON. Evidently you do not think that the national interest is of sufficient importance for the Federal Government to have any check on how much oil should go out of this country to foreign nations?

Mr. VANDER LECK. No; I do not.

Mr. WOLVERTON. In other words, the interest of the private owner to get all he can out of his oil well supersedes the national interest?

Mr. VANDER LECK. No. If we had a shortage here that would deprive the national interest, deprive the Navy of its oil, or the people here, I would feel differently, but I do not feel that situation exists.

Mr. WOLVERTON. Of course, that situation does not immediately exist. Whether it would exist in the future I am not able to say. I do see, however, that although conservation has been given as a reason to control production of a great national resource that is irreplaceable, you evidently are not of the opinion that it is worth the time it takes to express an opinion on it.

Mr. VANDER LECK. I believe in conserving those resources here for the people in this Nation, but I do not, Mr. Wolverton—there is a question always in my mind whether in 50 years from now or 25 years from now, that there won't be some chemist that will create a substance that will take the place of oil. I even sometimes wonder if we are going to have any market for it and whether it will be a valuable product in that space of time.

Mr. WOLVERTON. It is evidently your thought and opinion that you had better get it when you can?

Mr. VANDER LECK. In the meantime, we are trying to conserve it.

Mr. WOLVERTON. Well, if that is the case, and if that is your thought, to get it while you can, why do you make any pretense of conservation of oil?

Mr. VANDER LECK. Well, you might say we are taking a happy medium on it.

Mr. COLE. Mr. Vander Leck, what was the position of your group in the November election?

Mr. VANDER LECK. Our position in the November election was this: The central committee was a nonpolitical body on this and we took a neutral attitude and expressed no opinion on the Atkinson bill, and have expressed no opinion.

Mr. COLE. What was your individual opinion?

Mr. VANDER LECK. I was even asked not to express that, and it was a matter of controversy, and with your permission I prefer not to

answer that. I am acting as the chairman of the committee and the committee went on record to that effect.

Mr. COLE. Well, I will ask you this question. Do you think this State needs conservation statute?

Mr. VANDER LECK. You are asking me the question in another way, Mr. Cole——

Mr. COLE. Yes; I am.

Mr. VANDER LECK. And as I say, the central committee asked me not to express an opinion.

Mr. COLE. Well, you are here in a very important position, and I press the question.

Mr. VANDER LECK. I feel under our present condition we are going on——

Mr. COLE. I do not mean collectively. I ask you if you individually feel that the State of California needs a conservation statute at this time.

Mr. VANDER LECK. As long as we are doing the way we are, I do not believe so.

Mr. COLE. Then in the position of neutrality during the Atkinson fight, the fight on the Atkinson law, you, of course, did not contribute as an organization to either side?

Mr. VANDER LECK. That is right.

Mr. COLE. Is it your idea that whatever the export demand in Japan might be that the fields of California should meet that demand?

Mr. VANDER LECK. Yes.

Mr. COLE. And the same applies to other producing States, I assume?

Mr. VANDER LECK. Yes.

Mr. COLE. How about imports? Do you have any here?

Mr. VANDER LECK. None to speak of. I think they amounted to maybe, oh, a few hundred barrels, practically nil.

Mr. COLE. Then if some countries have oil to ship to this country you think that they should be entirely free to do so without any limit. In other words, you do not think that there should be any limit imposed upon exports or imports?

Mr. VANDER LECK. No; I do not agree with that.

Mr. COLE. Then what is your position?

Mr. VANDER LECK. My position is that we have oil here in California——

Mr. COLE. Let us leave California and look at it as a national problem.

Mr. VANDER LECK. I think it is going rather beyond my depth there. I think and feel this way: We have people in the industry here, working in it, people who are dependent on it from an income standpoint, and the stockholders. I feel that we should not import here cheap oil that is produced by labor which is under our scale and will destroy our industry.

Mr. COLE. Well, how would you handle the problem for the large refineries on the Atlantic coast where there is no production? Do you have no objection to supplying the labor there with something to do, and permit imports without any limitation.

Mr. VANDER LECK. Mr. Cole, I am not familiar with where they are getting their oil from there, but I am under the impression that

they can get their oil from the Mid-continent, the refineries on the Atlantic coast—but I am not familiar entirely with that situation.

Mr. COLE. Aren't you familiar with the importation of oil in this country from Venezuela and other countries?

Mr. VANDER LECK. I read about it in the paper.

Mr. COLE. Is that all you know about it, what you read in the paper?

Mr. VANDER LECK. Yes; and a shipment comes in once in a while.

Mr. PEARSON. Mr. Chairman?

Mr. COLE. Mr. Pearson.

Mr. PEARSON. Mr. Vander Leck, you were asked a question about the limitation of production of oil, and you said that it had a tendency to stabilize the price; isn't that right?

Mr. VANDER LECK. To stabilize the price, yes; it would have a tendency to do that; that is one of the factors.

Mr. PEARSON. By the same token an unlimited production of oil would have a tendency to decrease or to place the market somewhat in disorder or chaos, wouldn't it?

Mr. VANDER LECK. It would, yes.

Mr. PEARSON. So to reverse Mr. Wolverton's line of reasoning, if your central committee permitted an unlimited production of oil, it would throw the market into a chaotic condition, and the consumer himself would be destroying the thing which he wanted to protect, and he would eventually have to pay a much larger price for the commodity than he would have otherwise; isn't that right?

Mr. VANDER LECK. Yes; that is right. If you had a chaotic market due to an unlimited production, there would be unquestionably also a great deal of waste going on, which would eventually—

Mr. PEARSON. And eventually the whole process would be to destroy the thing that we were trying to protect?

Mr. VANDER LECK. Yes. You could not have conservation without stabilization.

Mr. PEARSON. I am interested in your statement that 50 percent of the potential oil recoveries are never recovered. Do you base that on actual experience?

Mr. VANDER LECK. Yes.

Mr. PEARSON. Or do you base that on figures from the Bureau of Mines, or from what source?

Mr. VANDER LECK. I base that, and Mr. Pemberton I believe—is that correct, Mr. Pemberton? Mr. Pemberton, you have that to touch on. It is based on reading, what I know about it is based on experiments, and he is going to give you that more in detail.

Mr. PEARSON. I understood you to say in your judgment 50 percent would be left even under the best producing conditions.

Mr. VANDER LECK. That is right.

Mr. PEARSON. Would that be true if you properly conserved your natural gas as an expulsive energy?

Mr. VANDER LECK. It would still be true. There are a great many features entering into it in addition to gas, such as edgewater, and porosity, and permeability, and the adherence of oil to the grains of sand.

Mr. PEARSON. You have only three ways to produce oil, one by gravitation, one by water and one by gas.

Mr. VANDER LECK. That is right.

Mr. PEARSON. And you say if all three of these expulsive energies are properly conserved there is still left in the reservoir 50 percent of the recoverable oil?

Mr. VANDER LECK. That is the estimate made by engineers. I have never made those estimates myself but I have read the papers given from time to time on those things.

Mr. PEARSON. Is there any way by which that remaining 50 percent can ever be recovered?

Mr. VANDER LECK. No, but as I said when the time comes when we need that I am quite sure some engineer will find a way of doing it. In Europe they got to that point in certain places and they mined it.

Mr. PEARSON. I believe that is all.

Mr. COLE. That is all. Thank you, Mr. Vander Leck.

Mr. VANDER LECK. Thank you, gentlemen.

Mr. COLE. Who is the next witness?

STATEMENT OF L. L. AUBERT

Mr. COLE. State your full name, sir, and vocation?

Mr. AUBERT. Gentlemen, my name is L. L. Aubert. I graduated from Stanford University in the latter part of 1921 with an AB in geology. In 1922 I started out working in the fields, Santa Fe Springs, and I have been associated and working in the oil business ever since. My position here this evening is as chairman of the allocation committee of the Central Committee of California Oil Producers. I would like to give you the functioning and the work of that committee. The allocation committee of the Central Committee of California Oil Producers is composed of seven members, all of whom are members of the central committee. All of the findings of this committee are reported to the central committee as recommendations. That committee must approve, modify or reject such recommendations. For the past 3½ years I have been connected with the allocation committee; its recommendations have been approved by the central committee in all instances with one exception. The functions of the committee consists of setting up a monthly production quota for the State, of distributing this quota to the various wells of the State after setting aside a sufficient portion of the State quota to take care of new wells which have come on production during the month; the introducing and recommending of such new policies as may be to the best interests of the industry.

The State quota has been set by this committee as nearly as practicable to the monthly quota recommended by the United States Bureau of Mines. For instance, the December quota was set at a figure not to exceed 599,000 barrels a day. The Bureau of Mines figure for the same period was 594,500 barrels per day. We strive to meet the United States Bureau of Mines as nearly as possible; however, we must give ourselves some leeway as the quota is set at least 10 days prior to the beginning of the month in which it is applicable, and we must do some estimating on the number of new wells which will be brought in during that period. The State quota is then distributed to various wells in the State in the form of a uniform quota, and I would like at this time to give to each member of the committee a copy of the tabulation of the allocation formula for each well for the month of December, 1939.

Mr. COLE. That is what you refer to as the uniform formula?

Mr. AUBERT. The uniform formula. I should like leave to submit this for the record.

Chairman COLE. Will you explain it?

Mr. AUBERT. I will.

Chairman COLE. Very well.

Mr. AUBERT. You will note in this tabulation that you have before you, the left side of the sheet is the potential, which is represented in barrels per day, for any well in the State. Across to the right you will notice various columns starting with, headed, "Zero—2,000 feet, 3,000 feet, 4,000 feet, 5,000 feet," and so on across the page. This tabulation enables the operator, who knows the size of his well, to glance to the left-hand side of the page and see where his corresponding potential is for that well, to carry it across to the depth approximately to which the well has been drilled or where the producing horizon is, and from that quick computation to figure out approximately his allocation for the month. What it will be for that particular well. Are there any questions?

Mr. LEA. You just take one potential.

(Chart referred to filed with the committee.)

Mr. AUBERT. All right. I could take a 200-barrel well, say it is 6,000 feet deep. The allotment for that well would be 88 barrels.

Chairman COLE. What formula did you use in arriving at 88 barrels? This is more or less of a mechanical allocation.

Mr. AUBERT. It is.

Chairman COLE. You spoke of a uniform formula and I asked you if that is what you meant by that and you said yes.

Mr. AUBERT. Well, that is a tabulation.

Chairman COLE. Where is the uniform formula you used in order to supply these figures?

Mr. AUBERT. Well, the formula that was used, I will get to that in just a moment.

Chairman COLE. Then you want to withdraw the statement that this is a uniform formula?

Mr. AUBERT. Well, this is a tabulation of the uniform formula.

Chairman COLE. You are going to give us the benefit of that explanation?

Mr. AUBERT. I am.

Chairman COLE. All right.

Mr. AUBERT. May I proceed, then, with my statement? I think that will make it clear; if not, I will be glad to go back and clarify it.

Chairman COLE. All right.

Mr. AUBERT. In order that you may fully see our problem, may I say that we had, as of December 1, 1939, 18,554 wells in the State of California capable of a production and to which allotments must necessarily be assigned. We have divided these wells into three classifications; first, the marginal wells, second, the intermediate wells, and, third, the top wells. Each well gets a minimum allotment based on a graduated scale according to the depth of the well. On the tabulation which you have before you, you will note that the allotment for the marginal well, according to its depth, appears above the staggered line. I would like to stop there for a minute. Also all those allotments that you see above the staggered line repre-

sent minimum allotments. In other words, a 50-barrel well, 8,000 feet deep, would give 50 barrels a day. It is uncurtailed.

Mr. WOLVERTON. Where does the factor of demand come into the calculation?

Mr. AUBERT. Well, we haven't got to that yet. This allotment is also the minimum allotment for intermediate and top wells and is what we term a living wage for the wells of various depths.

You will note that the deeper the well, the greater the minimum allotment. I think that is very evident. Any well whose potential is equivalent to or less than its minimum allotment, is termed a marginal well and is not subject to any curtailment. In the State of California as of December 1 there were 9,918 such wells.

Mr. WOLVERTON. This is rather technical. Would you object if I just ask a question?

Mr. AUBERT. No.

Mr. WOLVERTON. In fixing the larger number of barrels for a deeper well, is that on the basis that it costs more to drill?

Mr. AUBERT. Yes; costs more to drill and more to produce.

Mr. WOLVERTON. Proceed.

Mr. AUBERT. I refer to the 9,918 marginal wells. These wells had a potential of 89,858 barrels a day, and naturally they had an allotment of an equivalent amount. In the intermediate group there were 7,961 wells that had an aggregate potential of 847,087 barrels a day, but had an allotment of 370,492 barrels a day. On the tabulation you will find the allotment of these wells included below the upper staggered line and above the lower staggered line. In the top-well group, we had 675 wells with an aggregate potential of 1,586,087 barrels a day and an allotment of 137,700 barrels a day.

I should like to produce a chart showing the potential of these as well. Now have I answered your question? The formula represents a curve wherein the larger the well, the greater the percentage of curtailment.

Mr. WOLVERTON. How much oil would this formula produce when applied to the wells——

Mr. AUBERT. With such an allotment, 598,000 barrels.

Mr. WOLVERTON. You have at the present time approximately 15,000 wells.

Mr. AUBERT. 18,554 wells.

Mr. WOLVERTON. Now, is your formula made on the basis of producing 15,978,000 barrels?

Mr. AUBERT. That is correct, from 18,558 wells.

Mr. WOLVERTON. Now, then, in the event it was shown to be 450,000 barrels of oil, what would you do?

Mr. AUBERT. You have to reduce it.

Mr. WOLVERTON. Proportionately?

Mr. AUBERT. Yes; we would have to reduce it to a greater extent in the top wells, and to a lesser extent in the intermediate wells, and to a very small extent in the marginal wells.

Mr. WOLVERTON. Don't you have a minimum and a maximum?

Mr. AUBERT. We have a minimum and a maximum. As I have already explained, but that is on the basis of 598,000 barrels for the allotment. If a lesser figure were required, in such a drastically lesser figure such as you have referred to, it would be quite possible that the

minimum would have to be reduced, as you will see later—I will show you how much oil is allotted as the minimum allotment.

Mr. WOLVERTON. I took occasion to go into it while I had it here. That was the reason I gave you that figure.

Mr. AUBERT. That more or less graphically presents what I have been just talking about. The outer circle represents the potential of the various classes of wells. You will note the small section entitled "potential of marginal wells, 89,858 barrels a day, 3.5 percent of the State total, potential of intermediate wells," which is the next figure, represents 847,087 barrels a day, or 33.6 percent of the State total, and the large section, more than half of the section represents the potential of the top wells, 1,586,087 barrels, or 52.9 percent of the State total. The next smaller circle represents the minimum allotment to marginal wells, being 89,858 barrels a day, or fifteen percent of the State total. That is the minimum allotment as you see in the first segment clockwise direction.

Mr. WOLVERTON. In this your plan is five times the allotment that their percentage on potential would entitle them to?

Mr. AUBERT. Yes; because there is no curtailment, there is no restriction upon the production of those wells. You see the figure 89,858 barrels a day equals the potential in the little upper portion there of 89,858 barrels a day. All right. Immediately following that in a clockwise direction, intermediate wells, minimum allotment 187,806 barrels a day, or 31.4 percent of the State total. That is merely the minimum of the intermediate wells. In addition to that the intermediate wells have remaining allotment, making a total producible allotment of 370,492 barrels a day or 62 percent of the State total which results from combining their remaining allotment with the minimum allotment.

The balance of this small segment here, the last portion of it, the top wells have a minimum allotment of 36,963 barrels a day which is 6.2 percent of the State total, and their total allotment, which includes the minimum plus the remaining allotment, the total allotment to top wells is 137,700 barrels a day or 23 percent of the State total. The inner circle represents merely the number of wells. Starting again in a clockwise direction there are 9,918 marginal wells which represent 53.5 percent of the total number of wells in the State. There are 7,961 intermediate wells which represent 42.9 percent of the wells of the State, and there are 675 top wells which represent 3.6 percent of the number of wells of the state.

Mr. WOLVERTON. Do you have any table which shows the number of owners in those respective classes?

Mr. AUBERT. The number of owners?

Mr. WOLVERTON. Yes.

Mr. AUBERT. Do you mean producers?

Mr. WOLVERTON. Yes.

Mr. AUBERT. Oh, I could not say; I have no table on that.

Mr. WOLVERTON. I had in mind that there was something like seven companies that produced 75 percent of the oil. Am I right or wrong in that thought?

Mr. AUBERT. No; I don't believe that is correct, and you are a little bit—what we refer to is the seven major companies; is that what you refer to?

Mr. WOLVERTON. Yes.

Mr. AUBERT. The production of the seven major companies represents approximately 55 to 58 percent of the production.

Mr. WOLVERTON. Where would it come in this circle?

Mr. AUBERT. They have all classes of wells, marginal wells, intermediate wells and top wells. That is not reduced to—all classes of owners have interests in all classes of wells.

Mr. WOLVERTON. The figures I have in mind have relation to entire production from all classes of wells, those of the high potential field and those of the low potential field. Do the seven major companies control 55 percent of the production?

Mr. AUBERT. They have 55 percent of the allotment. That is based again upon that uniform formula—I refer to uniform formula—I have not given you actually the uniform formula. If you want to be real technical about it—the formula is the minimum allotment plus 0.746 power factor of the remaining potential.

Mr. LEA. You have, generally speaking, the cooperation of the individual owner of wells, even the small producing wells?

Mr. AUBERT. Yes, we do.

Mr. LEA. Do they cooperate with the major producers?

Mr. AUBERT. Yes.

Chairman COLE. What percentage does the Standard Oil Company have?

Mr. AUBERT. Oh, I would say approximately a seventh of the allotment. Their production is about 93,000 barrels a day, and we have approximately 600,000 barrels a day, which would be some place between a sixth and a seventh.

Chairman COLE. I was trying to get some idea possibly as justification for the charge that the Standard Oil Co. was in favor of the Atkinson, and the others were not. Wasn't it presented that way to the people of the State, that it was something that the Standard Oil Co. was asking for and therefore it should be defeated?

Mr. AUBERT. That is a question I am afraid I could not answer.

Mr. COLE. The companies that are connected with the central committee, did they individually favor or oppose the Atkinson Bill?

Mr. AUBERT. I don't know. I made no particular poll of the central committee.

Mr. COLE. Who would know that, Mr. Pemberton?

Mr. AUBERT. Well, I don't know whether he would know it. If I may say, similar to what Mr. Vander Leek said, this Atkinson bill, as you probably are aware, was a very controversial measure, and there was a probability that the bill might be taken out on referendum, and you never can tell what would happen to it. We thought, however, we had to have some sort of an organization which would have to carry through in the event the bill did not pass.

Chairman COLE. Now, for instance, the Superior Oil Co. has its percentage of production, the State total, as I have the figures here, its percentage is 1.73, whereas the Standard Oil Co. is 15.07. Now, according to the showing we have already had, the Superior Oil Co. contributed \$128,000 to defeat the Atkinson bill, and yet the Standard Oil Co. was for it. What is the difference in the present set-up under the central committee that would cause the Standard Oil Co. to want the Atkinson bill, if the advertisements were true, and the Superior Oil Co. would oppose it?

Mr. AUBERT. I am afraid I cannot say any particular reason in either event, because one fellow likes the law and the other fellow does not like it. I am afraid I cannot give you any answer as to that.

Mr. COLE. You don't know whether the Standard Oil Co. was for it or against it, or you don't know whether the Superior Oil Co. was for it or against it?

Mr. AUBERT. Well, it is hearsay that the Standard was for it and the Superior was against it.

Mr. COLE. That is a thing that would be interesting to me if somebody would explain that, as to who is responsible for that statement being made to the public, why the Standard Oil Co. would be for it and why the Superior Oil Co., a smaller company, would spend \$128,000 to defeat it, if you are all working together under the central committee.

Mr. AUBERT. I am sure I cannot answer that; probably for the same reason why some people voted for "ham and eggs" and why some voted against it.

Chairman COLE. I can't understand that either without an explanation.

Mr. AUBERT. I can't explain it. Shall I proceed?

Mr. COLE. As long as you are open to questions at this time, before we get on, or away from this, as a geologist do you approve of the method of allocating according to wells or number of wells like the practice in California, in preference to allocating by fields, similar to the practice in the States of Texas and Arkansas?

Mr. AUBERT. Yes; I do.

Mr. COLE. You think this is a better method?

Mr. AUBERT. I do.

Mr. COLE. Do you take into consideration here the bottom-hole pressures?

Mr. AUBERT. In allocation?

Mr. COLE. Yes.

Mr. AUBERT. No.

Mr. COLE. Don't you think, as a geologist, it is very advisable to do that, and do it right?

Mr. AUBERT. I would like to pass that question along until a little later. I am going to cover it.

Mr. COLE. You are going to answer it yourself and not leave it to somebody else?

Mr. AUBERT. No. I am going to answer it a little later on if I may proceed. The basic principle underlying this method of allocation is that each well of similar size and similar depth has exactly the same allotment, with the exception of the top wells. The top wells are those whose potentials and depths are such as would entitle them to receive an allotment in excess of the top allotment were it not for the fact that the central committee has ruled that no well shall have an allotment in excess of a certain figure. You will note that for the month of December this top figure is 204 barrels a day. For the month of January the top allotment has been reduced to 195 barrels a day. As, for example, a well 3,000 feet deep whose potential is 5,000 barrels a day, would receive no greater allotment than a well 2,000 feet deep whose potential is 2,000 barrels a day. In other words, both wells fall beyond that top-well allotment and their allot-

ment would be exactly the same. That is the one place where we have any discrepancy between the allotments of the various wells.

So that your committee may have a more comprehensive picture of the various classes of wells which produce oil in California, may I also present a tabulation which shows the wells divided into potential groups, the number of wells in each group, the potential, the minimum allotment, and total producible allotment of each group, together with accumulated totals of each subdivision. I would like to do that at this time.

Mr. COLE. Is this something prepared by you or by Mr. Pemberton?

Mr. AUBERT. It was prepared by the office of the umpire.

Mr. COLE. Is that the same as the other charts?

Mr. AUBERT. They are all prepared by the same office.

Mr. COLE. And not by you?

Mr. AUBERT. Oh, no. You see the staff of the umpire's office is a part of the central committee. The central committee employs the umpire, and turns over the operation of the staff to the umpire.

California—Potential grouping of wells according to size—All wells in State Dec. 1, 1939

[J. R. Pemberton, oil umpire for Central Committee of California Oil Producers, Dec. 7, 1939]

Potential group	Number of wells		Potential B/D		
	Each group	Accumulated smallest to largest	Each group		Accumulated smallest to largest
			Total	Average per well	
0 to 10 B/D (inclusive).....	7,263	7,263	34,061	4.7	34,061
11 to 15 B/D (inclusive).....	1,747	9,010	22,881	13.1	56,942
16 to 20 B/D (inclusive).....	1,247	10,257	22,720	18.2	79,662
21 to 25 B/D (inclusive).....	939	11,196	21,940	23.4	101,602
26 to 30 B/D (inclusive).....	691	11,887	19,634	28.4	121,236
31 to 40 B/D (inclusive).....	1,039	12,926	37,419	36.0	158,655
41 to 50 B/D (inclusive).....	797	13,723	36,674	46.0	195,329
51 to 75 B/D (inclusive).....	1,166	14,889	72,625	62.3	267,954
76 to 100 B/D (inclusive).....	712	15,601	62,964	88.4	330,918
101 to 150 B/D (inclusive).....	758	16,359	94,588	124.8	425,506
151 to 200 B/D (inclusive).....	458	16,817	81,025	176.9	506,531
201 to 300 B/D (inclusive).....	443	17,260	109,080	246.2	615,611
301 to 400 B/D (inclusive).....	210	17,479	72,849	346.9	688,460
401 to 500 B/D (inclusive).....	144	17,614	66,268	460.2	754,728
501 to 600 B/D (inclusive).....	84	17,698	46,466	553.1	801,194
601 to 700 B/D (inclusive).....	80	17,778	52,806	660.1	854,000
701 to 750 B/D (inclusive).....	43	17,821	31,927	742.5	885,927
751 to 800 B/D (inclusive).....	25	17,846	19,696	787.8	905,623
801 to 850 B/D (inclusive).....	38	17,884	31,817	837.3	937,440
851 to 900 B/D (inclusive).....	26	17,910	22,920	881.5	960,360
901 to 950 B/D (inclusive).....	16	17,926	14,880	930.0	975,240
951 to 1000 B/D (inclusive).....	16	17,942	15,803	987.7	991,043
1,001 to 1,500 B/D (inclusive).....	170	18,112	211,078	1,241.6	1,202,121
1,501 to 2,000 B/D (inclusive).....	152	18,264	272,907	1,795.4	1,475,028
2,001 and up.....	290	18,554	1,048,004	3,613.8	2,523,032

California—Potential grouping of wells according to size—All wells in State Dec. 1, 1939—Continued

Potential group	Minimum allotment B/D			Producible allotment B/D		
	Each group		Accumulated smallest to largest	Each group		Accumulated smallest to largest
	Total	Average per well		Total	Average per well	
0 to 10 B/D (inclusive).....	34,061	4.7	34,061	34,061	4.7	34,061
11 to 15 B/D (inclusive).....	20,896	12.0	54,957	22,720	13.0	56,781
16 to 20 B/D (inclusive).....	18,727	15.0	73,684	21,649	17.4	78,430
21 to 25 B/D (inclusive).....	16,728	17.8	90,412	20,027	21.3	98,457
26 to 30 B/D (inclusive).....	13,802	20.0	104,214	17,107	24.8	115,564
31 to 40 B/D (inclusive).....	22,866	22.0	127,080	30,169	29.0	145,733
41 to 50 B/D (inclusive).....	19,516	24.5	146,596	27,218	34.2	172,951
51 to 75 B/D (inclusive).....	32,180	27.6	178,776	48,342	41.5	221,293
76 to 100 B/D (inclusive).....	21,417	30.1	200,193	35,943	50.5	257,236
101 to 150 B/D (inclusive).....	22,704	30.0	222,897	44,976	59.3	302,212
151 to 200 B/D (inclusive).....	14,279	31.2	237,176	32,833	71.7	335,045
201 to 300 B/D (inclusive).....	14,887	33.6	252,063	38,714	87.4	373,759
301 to 400 B/D (inclusive).....	7,858	37.4	259,921	22,812	108.6	396,571
401 to 500 B/D (inclusive).....	5,777	40.1	265,698	18,667	129.6	415,238
501 to 600 B/D (inclusive).....	3,951	47.0	269,649	12,594	149.9	427,832
601 to 700 B/D (inclusive).....	4,020	50.3	273,669	13,481	168.5	441,313
701 to 750 B/D (inclusive).....	2,331	54.2	276,000	7,897	183.7	449,210
751 to 800 B/D (inclusive).....	1,091	43.6	277,091	4,522	180.9	453,732
801 to 850 B/D (inclusive).....	2,195	56.1	279,286	7,631	200.8	461,363
851 to 900 B/D (inclusive).....	1,381	53.1	280,667	5,304	204.0	466,667
901 to 950 B/D (inclusive).....	832	52.0	281,499	3,264	204.0	469,931
951 to 1,000 B/D (inclusive).....	880	55.0	282,379	3,264	204.0	473,195
1,001 to 1,500 B/D (inclusive).....	9,277	54.6	291,656	34,675	204.0	507,870
1,501 to 2,000 B/D (inclusive).....	7,038	46.3	298,694	31,098	204.0	538,878
2,001 and up.....	15,933	54.9	314,627	59,172	204.0	598,050

This tabulation shows the number of wells in each group, the potential, the minimum allotment, the total producible allotment of each group, together with accumulated totals of each subdivision. It is interesting to note from this tabulation that of the 18,554 wells in the State as of December 1, 1939, there were 15,601 which had a potential of 100 barrels a day or less. In other words, only one-sixth of the number of wells of the State have potentials in excess of 100 barrels a day.

The field or pool allotment is the sum total of the well allotments within such field or pool.

I believe, Mr. Cole, that is an answer to your point. We have individual wells and every well stands on its own. And the field has an allotment. What the total number of wells bring to the field in accordance with their potential and depth is expressed in accordance with this formula.

Mr. COLE. Is that following the practice of the State of Kansas?

Mr. AUBERT. I couldn't say.

Mr. COLE. It is somewhat similar to the practice here.

Mr. AUBERT. Well, if it is, it is a good practice, I think.

Mr. COLE. What was that? I didn't hear that.

Mr. AUBERT. I said if it was the practice in the State of Kansas, it was a good practice.

Well, they must have two good States, then.

This method of allocation has been in effect in California for the past 7 months, and I will say that it has practically silenced all of the arguments between the field committees relative to the inequities of allotments. One of the difficulties which we have to face each

month is the task of providing allotments for the new wells which have been completed during the month. Our new completions range from 70 to 120 wells a month, with aggregate potentials varying from 70,000 to 130,000 barrels a day. We are constantly faced with the problem of finding 10,000 to 16,000 barrels of allotment to take care of these new wells. So far we have been able to meet the required allotment for our new well problem.

The amount of oil obtained from these sources is usually insufficient to meet the requirements for the new wells. It therefore becomes necessary to decrease the allotment of the intermediate wells and to control the top allotment of the top wells. At this time I would like to stress the fact that during the past 7 months neither the minimum allotment nor marginal well allotment has been reduced to provide for the new wells. And that in answer to you, Mr. Wolverton, that having to meet and provide for from 10,000 to 16,000 barrels a day for the new wells to come in during the period of the past 7 months we have been able to meet those, to reduce the top allotment, to reduce the allotment for the intermediate wells, without having reduced the allotment to marginal wells. We have felt that liberal allotment should be given the marginal wells in order that we may safeguard against their loss by premature abandonment. I should also like to emphasize that of the 598,050 barrels of total allotment distributed for the month of December 314,627 barrels were distributed as minimum allotment, which includes the 89,858 barrels per day to marginal wells.

Mr. WOLVERTON. Right at that point, you spoke of avoiding abandonment. Was the estimate given by Mr. Vander Leek correct when he said there was 50 percent you did not recover?

Mr. AUBERT. I would like to answer that question this way. It may be a little bit conflicting with Mr. Vander Leek's statement, and probably is, but I don't know who can tell how much oil is being left underground.

Mr. WOLVERTON. Would you say your means of recovery now in use in this State in any measure justifies the statement that 50 percent is not recoverable?

Mr. AUBERT. To my knowledge I couldn't say how much oil is left in the ground or what percentage of the oil is recovered. And furthermore I would like to see the fellow that could tell you how much oil you should recover from underground. As I say I have only been in this business a short time.

Mr. WOLVERTON. It might be more than that or might be less than that?

Mr. AUBERT. That is quite correct. It is something which we cannot see, which we cannot measure. There are people, there are engineers that will take core analysis for instance. Bear in mind the core is only a 3- or 4-inch section taken vertically and you analyze that particular 4 inches and say the permeability and the porosity should make it contain so much oil and so much water and so on, and you will apply those factors that you get from a core in a section over 20 acres or 10 acres or 5 acres or even 1 acre. Might it not be that that particular core which you penetrated was a little more impervious than the spot 5 feet away? It is only relative.

Mr. WOLVERTON. Well on the average how much cubic feet of gas does it take to raise a barrel of oil?

Mr. AUBERT. That depends entirely upon the pressure, your bottom-hole pressure.

Mr. WOLVERTON. Still there is no regulation as to bottom-hole pressure?

Mr. AUBERT. As far as allotment I say no. We have not taken into consideration bottom-hole pressure as a means of allocation.

Mr. WOLVERTON. If bottom-hole pressure has a relationship to the recovery then why do you not have that regulation?

Mr. AUBERT. I really don't know whether bottom-hole pressure has a relation to recovery.

Mr. WOLVERTON. What is the accepted view?

Mr. AUBERT. I really couldn't say. I believe that is a very controversial issue.

Mr. WOLVERTON. Do the other States take into consideration that element?

Mr. AUBERT. I understand the State of Texas rather has some figures on bottom-hole pressure. I don't know whether they use those figures in the allocation of oil to the various fields.

Mr. WOLVERTON. Suppose they were making a recovery of 70 to 80 percent in Texas and you were only making 50 percent recovery as testified to by the previous witness, wouldn't it seem there was some relation to bottom-hole pressure?

Mr. AUBERT. If your statement were correct, if they were—I mean, who is going to say that the recovery of 80 percent is the figure in Texas?

Mr. WOLVERTON. I don't want to be bound to that figure. It is quite some time since I heard testimony on it, but it lingers in my mind. I may be mistaken as to the reason, but if that is the case would it not indicate there is some relationship between the bottom-hole pressure as used in Texas and the absence of it in California with respect to recovery?

Mr. AUBERT. If that were the case, undoubtedly that is true. On the other hand it is a subject which is one of opinion, and probably Mr. Vander Leck has the opinion that 50 percent of the oil cannot be recovered. I have the opinion that no one knows how much oil can be recovered because when you get all through, when the field is absolutely finished you don't know how much you have left in there when the thing has all gone to water. You are going to estimate you recovered all of it. That might not check out with your estimates or it may double your original estimates, in which event you say if your total recovery is double your original estimate, you will say "We did a fine job in that field. We got twice as much oil as we originally figured." The other fellow who only got half of what he estimated would probably figure "Well, my estimates were probably wrong. There was only half as much oil there as I thought there was," and it is only an estimate or opinion in the first place. Anybody that can definitely prove how much oil there is in a given acre or quarter acre or 50 acres—I don't know who he is.

Mr. WOLFENDEN. You would say there was no scientific way of determining just how much is left after you are done?

Mr. AUBERT. To my knowledge, there is not.

Mr. WOLFENDEN. You are a geologist, too?

Mr. AUBERT. That is right.

Mr. WOLFENDEN. Is there any scientific way by which you can determine whether or not oil underlies land at all except an empirical way?

Mr. AUBERT. Oh, there are some methods which have not been definitely proven; in other words, the seismograph method may give you a determination of subsurface structure and soil analysis might give a halo of lighter hydrocarbons, in some instances that is true, they have found there is oil present, in other instances it has not worked out.

Mr. WOLFENDEN. In other words, you could not say then just as a matter of geological knowledge whether or not oil underlies any land that has not been actually drilled?

Mr. AUBERT. If that could be definitely proved there would be no dry holes drilled, it would be a great help to the industry. [Laughter.]

Mr. WOLFENDEN. So that there might be a great deal of oil and we don't know it?

Mr. AUBERT. That is correct.

Mr. WOLVERTON. Reserves have increased about 50 percent since this committee first met in 1934.

Mr. AUBERT. I think so.

Mr. COLE. Do you know the estimated reserve in California?

Mr. AUBERT. Well, I know what a lot of people estimate them to be, which is somewhere between 3,100,000,000 and 3,300,000,000.

Mr. COLE. You do not accept that as at all accurate?

Mr. AUBERT. I assume they are accurate. I never made any checks on reserves myself.

Mr. COLE. Is it possible for anybody else to do it if they devote their time to it?

Mr. AUBERT. Surely. Two engineers might not come out with the same reserves. If they come out within 5 percent of one another, that would be relatively close.

Mr. COLE. Taking a field 10 years old, you could get a pretty good idea of what percentage is required over a definite time under certain conditions. In other words, in Pennsylvania, they know what percentage of oil has been recovered there over a period of years.

Mr. AUBERT. Well, I think they figured in Pennsylvania that the fields were practically extinct, and then some fellow came along with an idea of water flooding and they are now producing practically six times as much.

Mr. COLE. I do not know as I ever heard anybody say that they were practically extinct as to the oil, but that the pressure had been lowered. We have had so many figures as to reserves in this State and other States that I personally have come to the conclusion that the engineers and geologists knew what they were talking about when they gave us those figures and that it was not a matter of mere guess.

Mr. AUBERT. Well, maybe I should not run the engineers down. Probably they do better than our own engineers do, because I know we have to make reserves for tax purposes, and usually, at the end of every year, we revise our reserves, and they are constantly being revised from year to year, either downward or upward, and it is rather an inexact plan.

Mr. COLE. In a great many cases, it has been the subject of investigation, as to the ability of engineers and geologists to determine the potential of the field. All right.

Mr. AUBERT. I would like at this time to present a graph which shows the reduction in wells from June 1 to December 1, 1939. The upper line on the graph represents well-allotment curve for June 31, and the lower line representing the well-allotment curve for December 1. You can see from June 1 to December 1 the top allotment was reduced from 250 barrels a day down to 204 barrels a day.

And the allotment in the intermediate wells has been reduced accordingly, as you can see. The bulk of the production has come from the top wells. That was reduced progressively from June 31 to December 1, 1939.

Mr. WOLVERTON. There is a very perceptible drop with respect to the difference between production and allotment in a great many instances here in this State at the time the Atkinson bill was being considered. It was noticeable in June, last previous to that, in 1937, 1938, and 1939, there was shown on the graph a line that rose decidedly above the allowable. And yet when it came to the time when the Atkinson bill was to be passed, it dropped perceptibly until it got, in fact, the lines showing production and allotment almost touched one another. I do not know whether that was because of the Atkinson Act or not. Did it, in your opinion, have any relationship?

Mr. AUBERT. I do not think that it did, Mr. Wolverton, because we have been working on a uniform formula for about a year.

Mr. WOLVERTON. Now, the same thing seems to be happening again. There has been a gradual reduction in the allotment since the Cole bill was introduced that we now have before us in this hearing, and up to the present time. I don't know whether the present Cole bill, and the pendency of it before Congress has any relationship to that or not.

(Chart referred to filed with the committee.)

Mr. AUBERT. No; I have been working on the matter of uniform allocation for about a year.

Mr. WOLVERTON. We noticed in our hearings in 1934, when the question of hot oil was such a subject of discussion, that there was a distinct decrease in the problem, while the legislation was under consideration in Congress. Now, of course, it may be I have drawn wrong conclusions. Maybe I have a wrong thought that such might have been a possible reason, but it does seem to me rather strange that this happens in the three instances I refer to, namely, in 1934 and when the Atkinson bill was before the Legislature in June of last year and now this present legislation that is before Congress.

Mr. AUBERT. Well, if I may offer you a little in the way of explanation, or rather information, we have been working on this uniform formula for quite some time. The uniform formula was first injected into the Central Committee in the latter part of April, however, it was not adopted until the first of June, and if memory serves me, I don't think the Atkinson bill went through even the assembly in Sacramento until the middle or the latter part of June. I know they stopped the clock there for three or four days—I mean by that I lost track of it.

Mr. WOLVERTON. I think I have seen that done. When one of the major oil companies in Texas in August advertised a lower price per barrel for crude, the several States that were a part of the compact immediately shut off production. Did California do so?

Mr. AUBERT. No.

Mr. WOLVERTON. In other words, if the others shut off production because of lower prices, California kept right on?

Mr. AUBERT. Well, I don't know why they shut it off, but we went along just the same way as we had.

Mr. WOLVERTON. You know as a matter of fact that it did shut down, do you not?

Mr. AUBERT. Well, that is what I understand.

Mr. WOLVERTON. Did that change the demand in this State?

Mr. AUBERT. Not to my knowledge.

Mr. WOLVERTON. Because you have a field or market area all to yourself, is that the reason?

Mr. AUBERT. Well, it is somewhat a field—in other words, the market which we have is more or less a local market. By that I mean the five Western States and such off-shore business as they have.

Mr. WOLVERTON. Was there any drop in storage while the drop in allocation was in effect?

Mr. AUBERT. Yes, sir.

Mr. WOLVERTON. Was the drop in allotment due to lack of demand or because demand was being supplied from storage?

Mr. AUBERT. No; the allotment was kept on an even keel.

Mr. WOLVERTON. I got the impression from what you said that it was dropped gradually until it got down to a low of 204.

Mr. AUBERT. That is quite true of the allotment per well, but we were bringing in from ten to sixteen thousand barrels a day of new allotment which had to be taken from the other wells from which then producing.

Mr. WOLVERTON. Did you take into consideration in fixing your allotment the amount that was in storage and the amount that was being drawn from storage?

Mr. AUBERT. Well, we were following the Bureau of Mines' figures, as I heretofore said.

Mr. WOLVERTON. Why do you have confidence to the extent you have stated in the Bureau of Mines figures and are not willing to have a Federal set-up which will require you to take their figures?

Mr. AUBERT. Well, we already have the benefit of the Bureau of Mines figures.

Mr. WOLVERTON. You are not required to follow them.

Mr. AUBERT. No; we are not required to follow them.

Mr. WOLVERTON. But you have confidence enough in them to follow them?

Mr. AUBERT. Well, I would say, yes.

Mr. WOLVERTON. Well, then, you must be of the opinion that the Bureau of Mines is fairly accurate in estimating the possible demand?

Mr. AUBERT. I believe that they are at this time.

Mr. WOLVERTON. Why is there lack of confidence then in giving them the power to do so by legislation?

Mr. AUBERT. You mean to give the Bureau of Mines the power to?

Mr. WOLVERTON. Yes.

Mr. AUBERT. I think that is a different function.

Mr. WOLVERTON. You do not believe in legislation to that extent?

Mr. AUBERT. I would say that was an entirely different function.

Mr. WOLVERTON. It seems you believe and favor legislation that would give power to the Bureau of Mines of the Federal Government

or some such bureau, to fix the demand figures only if the allowed production is in accord with your figures?

Mr. AUBERT. Well, maybe I misunderstand your question. They have already given out the figures on what they estimate it is going to be.

Mr. WOLVERTON. I understand, but there is nothing compulsory upon California or any other State to accept those statements and keep production within its pro rata portion. You do in fact, because you accept their figures and fix your allotments on the basis of what the Bureau of Mines has fixed as the possible demand. Now, my point is this: If you have that confidence in the figures of the Bureau of Mines, why not delegate to them by Federal legislation the power to fix the allotment?

Mr. AUBERT. Well, it goes beyond that.

Mr. WOLVERTON. Do you think legislation to that extent would be advisable?

Mr. AUBERT. Well, my answer to that would be—I do not wish to be critical of the Bureau of Mines, for, as I say, I think that they are doing an excellent job at the present time—they probably revised their methods. However, a year and a half ago the Bureau of Mines was just completely off the reservation as far as fixing demand was concerned.

Mr. WOLVERTON. Well, your point is that you are only willing to agree with them when they agree with you.

Mr. AUBERT. Well, when they seem to agree with the actual demand.

Mr. WOLVERTON. What means has California of determining the actual demand except by the figures given by the Bureau of Mines?

Mr. AUBERT. Why, you have your fluctuations in inventory.

Mr. WOLVERTON. But you never change from what the Bureau of Mines gives you, do you?

Mr. AUBERT. We have in the past.

Mr. WOLVERTON. On what do you base your allowable when you discredit the figures given by the Bureau of Mines as to possible demand?

Mr. AUBERT. Well, at the time that the Bureau of Mines was quite out of line, we took our position from the increase in inventory. Undoubtedly any inventory increase on a fixed production—in that case the demand must be less.

Mr. WOLVERTON. Why shouldn't the consumer have some right and have some say in fixing the estimate of possible demand as a basis for allowable production?

Mr. AUBERT. Well, I do not know of anything that would prevent the consumer from having that right.

Mr. WOLVERTON. Well, there is no set-up at the present time nor is there any legislation that would enable the consuming public to do so through any representative in either Nation or State.

Mr. AUBERT. Well, I do not think it is necessary. I think our situation is pretty well handled by the industry itself.

Mr. WOLVERTON. I have never been able to satisfy myself that if the industry uses those figures for the purpose of allotment, why they object so strenuously to the Bureau of Mines having the power to enforce them.

Mr. AUBERT. Well, there is a great deal more than fixing the total consumers' demand. That is really a very, very simple problem. When it comes to the allocation of the supply, then that is the point where you run into the greatest difficulty.

Mr. COLE. Just one question: Following up your testimony as to the inability of the engineers and geologists to determine the oil recoverable from reservoir sands, recalling some of your testimony, I read from page 381 of the testimony of Charles S. Miller, senior petroleum engineer, who testified, and in some respects seems to support the theory you have presented to us tonight. In revising your remarks and to be able to refer to it in the morning, I would appreciate your reading that part of the hearing, which Mr. Layton will furnish you, and you may elaborate further in your testimony upon the position that Mr. Miller has taken there.

Mr. AUBERT. May I get those pages, please?

Mr. COLE. It runs all through his testimony, but I am referring especially to pages 380 and 381, for instance, just one sentence [reading]:

Appreciating the need for more accurate information than has been obtainable heretofore on the quantity of oil in a sand originally, at any time during its producing life, or after a field has been abandoned because producing operations no longer could be carried on profitably, engineers now are working on the development of coring tools that have for their objective the taking of core specimens of reservoir sand under pressure and uncontaminated by drilling fluids.

And so forth.

Mr. COLE. Referring to this testimony, it will probably tie in with your statements on other questions. You have not finished?

Mr. AUBERT. No, I have not, Mr. Cole.

Mr. COLE. How much longer do you think it will take, how much time?

Mr. AUBERT. I have about two pages here. However, inasmuch as there was still a variable in the determination of potential and it was felt that inequities might creep in at that point, the allocation committee appointed an engineering committee to study rules and regulations for the determination of individual well potentials by bottom hole pressure method.

We did not make allocations on that basis, but we endeavored to determine the potential of wells by bottom hole pressure methods.

This method was to act as an alternative to the open-flow demonstrative method, which had been the rule in the past. It was felt that for the immediate future we would still have to follow the operators to make demonstrative tests, if they so desired; but the committee was in agreement that it should endeavor to discourage demonstrative tests for the reason that they are a waste and inconclusive. The committee likewise felt that it would take some time to educate the producers to the benefits which they would obtain by using the bottom hole pressure method. We are pleased to report that rules and regulations for the determination of well potentials by bottom hole pressure method have been adopted by the central committee and are now in force. I should like to submit to your committee a copy of these rules and regulations.

J. R. PEMBERTON,
LOS ANGELES, November 24, 1939.

DEAR SIR: The following changes have been made in the "Principles and regulations for determination of potential factors from subsurface pressure data" in accordance with a resolution of the Central Committee of California Oil Producers made on November 22. Please consider these changes as a part of the rules, a copy of which has previously been sent you.

1. Insert on page 8 as a continuation of I-C: "An old pumping well must produce at not less than the highest demonstrated rate for 3 days immediately prior to the test, and in addition to this, it shall be produced at an average of not less than the current allotment for the 12 days preceding the high rate period. A new pumping well must produce at not less than the highest demonstrated rate for 3 days immediately prior to test."

2. The last paragraph of introduction, page 1 will read as follows: "All subsurface pressure data submitted will be treated as confidential and their use will be restricted to members of the umpire's staff and the depth pressure advisory committee; the data are the property of the company submitting them."

3. The sentence near the bottom of page 6 will read: "Under no condition will a pumping well be given a potential larger than the volume which can be handled by the largest practicable pump installation of the same type of equipment."

You will be similarly notified of any further changes that may develop in the future.

Very truly yours,

WM. R. WARDNER, Jr.,
Assistant Oil Umpire.

PRINCIPLES AND REGULATIONS FOR DETERMINATION OF POTENTIAL FACTORS FROM SUBSURFACE PRESSURE DATA (WITH EXAMPLES)

INTRODUCTION

The Central Committee of California Oil Producers recently established a new plan known as the uniform method for allocating production quotas. Under this system an allotment is assigned each individual well according to its effective depth and potential factor. Under these conditions it is essential that the potentials of all wells in the State be established on a comparable basis so that uniformity will be attained.

Under the present system of voluntary curtailment, the duties delegated to the umpire by the central committee include the establishment of well potentials as a necessary step in the preparation of allocation schedules. The umpire has further been authorized by the central committee to gather depth-pressure data and to use them in the calculation of potential factors. In all cases, however, it shall be optional with the operator as to whether he desires to establish the potential of a given well by restricted flow and subsurface pressure measurements, or by actual an production test demonstration of the well's capacity. It is considered essential that the calculated potential factor of a well shall not exceed a rate which actually could be demonstrated.

All subsurface pressure data submitted will be treated as confidential and their use will be restricted to members of the umpire's staff and the depth pressure advisory committee.

GENERAL PRINCIPLES

The primary purpose of the allocation committee in recommending the principles of potential determination through depth-pressure methods was to avoid the detrimental effects of open-flow tests upon the well, the operator, and the industry. Some of the more significant advantages of depth-pressure production-rate tests are:

1. Excess production is held to a minimum.
2. The well and pool are protected from damage which might result from open-flow production tests.
3. Investment in oversized equipment is minimized, permitting use of smaller units suitable for production under curtailment.
4. Potential determinations and pressure data are systematically recorded by the umpire and become useful for establishing the actual decline of well potentials.

Out of approximately 19,000 wells in California as of October 1, there were about 16,000 with potentials less than 100 barrels per day. In general, this group

will continue to receive potential values determined from actual production records as in the past. The remaining 3,000 wells constitute the group which is the main field of use for the method set forth herein. Included in this number are approximately 400 wells which have demonstrated potentials far beyond the amount required to obtain the maximum allotment. Rules governing the calculation of potential factors from subsurface pressure methods have been drawn up with the thought in mind of securing conservative values for potential factors.

The depth-pressure method of establishing a potential is an alternate to the open-production test and is entirely optional with the producer. To insure potential values consistent with actual demonstration it is the prerogative of the umpire to exercise his discretion as to what data are acceptable for potential determination. In reviewing potentials with the operators the umpire's engineers make use of all pertinent data available. Where subsurface pressure data augment the production records they will be given consideration in the establishment of potential factors.

The present inherent limitations of the depth-pressure method for this specific application are recognized. Therefore, it has been the aim to provide herein a plan of procedure for establishing potential factors by use of conservative methods. Attention is called to the fact that the potential factors arrived at through the depth-pressure methods set forth herein, and discounted to cover hazards of inaccuracy, and variation from normal behavior, are not necessarily the true productive abilities of the wells. They are values representing relative productive capacities under the uniform system described here, none of which would be in excess of those actually producible.

It is necessary that correlations between potential factors established from depth-pressure data and those determined from actual well performance be made in various fields in order to provide assurance that the adopted uniform procedure will result in reasonably accurate and equitable potentials for all types of wells. If the conclusion of such a study shows that the prescribed method does not accomplish this end in a particular field, a further study will be made with the purpose of attempting to set up special rules for that field which will be applicable to all wells in the area and which will bring about uniform results.

DEPTH PRESSURE ADVISORY COMMITTEE

An engineering committee, known as the depth-pressure advisory committee has been appointed by the allocation committee to act in a consulting capacity to the umpire on technical matters relating to depth-pressure work. The committee members are actively engaged in depth-pressure work in various fields of California, and this background of experience will be of value in the execution of their duties.

The activities of this committee are as follows:

1. To advise the umpire in all matters pertaining to establishment of potential factors from subsurface pressure methods.
2. To review the rules governing potential factor determination from subsurface pressure data and recommend changes when necessary.
3. To recommend special studies or investigations which may appear necessary in a particular field, to be made by the operators or by members of the umpire's staff, for the consideration of the committee.
4. To review all potential factors set by the umpire's staff based on subsurface pressure methods, giving particular attention to cases which do not permit routine evaluation.
5. To act as a board of review in case of a dispute between an operator and the umpire as to the application of rules or interpretation of data.

GENERAL METHODS—FLOWING AND GAS LIFT WELLS

The data required by this method are obtained by the use of a depth-pressure recorder run into the well under shut-in and flowing conditions. Experience shows that potentials for flowing or gas lift wells may be calculated with precision if accurate depth-pressure measurements are made under equilibrium conditions with wells flowing at approximately 60, 40, and 20 percent of capacity, or with a static measurement and flowing runs at 30 and 60 percent of capacity.

It is essential that wells be produced under constant operating conditions for a sufficient time immediately preceding each test, to insure equilibrium. A depth-pressure recorder should be run during the last 2 hours at each of the rates listed under one of the following sets of conditions:

1. A static, and flow run at approximately 60 percent and 30 percent of the smaller of either (1) the calculated potential, or (2) the potential factor which yields a top allotment.

2. Flow runs at approximately 60, 40, and 20 percent of the smaller of either (1) the calculated potential, or (2) the potential factor which yields a top allotment.

Graphic interpretation of the data involves plotting mean formation pressure¹ and tubing pressure versus gross production rate. The tubing pressure curve is extrapolated from its value at the highest demonstrated rate parallel to the subsurface pressure-rate curve down to the 30-pound-per-square-inch minimum value for surface pressure. The rate corresponding to this intercept is the gross potential, the net potential being determined from the cut.

Algebraically, the potential may be calculated by multiplying the productivity index of the well by the difference between the static mean formation pressure and the minimum mean formation back pressure. The minimum mean formation back pressure is the vertical flow pressure loss for the maximum demonstrated rate plus 30 pounds per square inch.

Potentials calculated by this method will tend to become larger in most wells as the demonstrated rate is increased due to lightened gradients in the flow string. Because this method penalizes some wells at low rate of flow and tends toward higher demonstrated rates with possible attendant injury to the well, a modification will be recognized. Acceptable values may be established for limiting gradients in certain areas under consideration, provided that sufficient reliable data are furnished by an operator based on performance of wells in the same area having similar producing characteristics.

Pumping wells

A pumping well calculated potential is derived from the productivity index and accompanying pressure data determined by use of a depth-pressure recorder or by a sonic method. The productivity index of a well can be ascertained by obtaining two or more points on a pressure-rate curve. Pressures should be calculated on a basis of mean formation pressure. Acceptable bases for determination of productivity index are:

1. Sonic measurement of fluid levels or depth-pressure recorder measurement and calculation of mean pressures at two or more equilibrium rates.

2. A static pressure combined with at least one producing pressure obtained with sonic equipment or a depth-pressure recorder.

For the purpose of calculating the potential, the mean producing pressure will not be reduced below the value calculated with the fluid level at the top of the perforations unless the pump intake is actually below the top of perforations. In this case, the mean formation pressure may be calculated with the fluid level at the pump. The umpire reserves the right to judge the depth to which the fluid level may be drawn down on the basis of all available data and field experience for the area in question.

Reliability of sonic data must be weighed, since the sources of possible error involve unstable fluid levels as well as fluid gradients which may not be precisely determinable. It is necessary that a sufficient length of time elapse between changed producing conditions for the fluid levels to come to equilibrium for constant production rates. This method may employ the use of measuring fluid gradients by maintaining a constant rate of production and depressing fluid levels by increasing casing pressure.

Under no condition will a pumping well be given a potential larger than the volume which can be handled by the largest practicable pump installation.

Discount system

The fundamental principle underlying the calculation of potential by pressure methods involves the extension of a pressure rate curve to conditions of higher rate and accompanying lower pressure. To secure potential factors which are always producible, it is considered advisable to discount calculated potentials under specified conditions by a uniform formula, as follows:

$$F = D + \frac{D}{P} (P - D) = D \left(2 - \frac{D}{P} \right)$$

¹ See reference on p. 11.

where F =potential factor; D =(1) 100/60 of the highest demonstrated rate for which pressure measurements are made, but not to exceed the calculated potential, in a flowing or gas lift well, or (2) the highest demonstrated rate for which pressure measurements are made in a pumping well; P =calculated potential.

As previously pointed out, the pressure rate curve generally can be extended accurately to 100/60 of the highest demonstrated rate for flowing and gas-lift wells. Therefore, in these wells the calculated potential is not discounted if the highest demonstrated rate equals or exceeds 60 percent of its value. In the case of pumping wells, since the hazards are considered greater, discounting starts from the highest demonstrated rate.

Although the discount factor is arbitrary, it has a reasonable basis. In effect, a pumping well is given a potential factor which is the highest demonstrated rate plus a fraction of the difference between the calculated potential and the rate. This fraction is the ratio of the highest demonstrated rate to the calculated potential. It is recognized in the application of this formula that a demonstration is the most accurate gage of a potential factor, and as the demonstrated rate increases, the discount decreases, reaching zero at capacity production.

Potential decline by the umpire

The periodic submission of subsurface pressure data to the umpire will permit a more accurate decline of potential factors than is possible from production records alone. The decline of static pressure and productivity index of a well will be acceptable as a basis for the decline of potential factor.

The highest percentage of the calculated potential demonstrated in any depth-pressure test of a well may be used in place of the discount formula for calculation of the potential factor in any subsequent depth-pressure test. This method will be allowed only when there are no appreciable changes in producing conditions such as increase in productivity index, gas-oil ratio, or cut of sand or water.

Regulations for gathering subsurface data

These regulations outline a procedure of obtaining depth pressure data which will secure the greatest accuracy practicable on the basis of present knowledge; however, they are subject to revision if changes appear desirable in light of later experience.

I. *Production policy*.—(A) An equilibrium period for rate stabilization is required prior to determination of the subsurface pressure under producing conditions. Where less time than 24 hours is used for stabilization, sufficient data must be provided to show that equilibrium is reached in the shorter time.

(B) A shut-in time of not less than 48 hours shall be required for the determination of a static pressure, unless sufficient data are provided to show that equilibrium is reached in a shorter time. The casing and tubing of a pumping well must be shut in during the entire period in addition to having the pump shut down.

(C) Daily production for old wells must average at least current allotment for the 15-day period preceding the potential test.

(D) In pumping wells, a large differential is desired between oil production rates accompanying pressure measurements, and in no case shall it be less than the allotment.

(E) A static pressure is not acceptable for potential calculations in a well equipped with a tubing packer and tubed below the top of the perforations.

(F) Data must be submitted on standard forms obtainable from the umpire's office.

II. *Pressure measurement*.—(A) The accuracy of depth-pressure recorder measurements shall be within 1 percent error. It is suggested as a routine method of checking gage accuracy that the recorder tubing head pressure be compared with the tubing head pressure as measured by a test gage of known calibration.

(B) Elapsed time period for completion of pressure measurements: Pressure measurements for calculation of a potential should be taken within a 10-day period. Otherwise, the pressure-time relation should be supplied in each case to permit evaluation of the rate of decline of static pressure.

(C) Pumping well tests by depth pressure recorder: 1. It is recommended that a static pressure and not more than one producing pressure be measured on a single 72-hour depth-pressure recorder chart.

2. To facilitate interpretation, a plot of pressure and production rate versus time is requested.

(D) Measurements by sonic recording equipment in pumping wells: Fluid levels are measured and the depth-pressure relationship is determined.

1. Producing pressure measurements: (a) In determining the depth pressure relationship in the casing of a pumping well, the fluid level for any constant production rate should be depressed at least two-thirds of the distance between its location at the lowest casing pressure and the pump intake. At least two fluid levels are essential for this determination. Three or more are preferable, particularly if the fluid level is fluctuating during the measurement of its highest position.

(b) The elapsed time between consecutive fluid-level measurements at different casing pressures shall be sufficient to insure that the production rate has become constant at an increased casing pressure. Experience has shown that this time interval should be at least five times as long as that computed by dividing the volume of fluid in the casing between the fluid levels by the constant production rate. The fluid-level determination shall not be made until production gages show that conditions have returned to equilibrium.

(c) To obtain reliable fluid levels for establishment of the depth-pressure relationship, a back-pressure regulator shall be used to insure a constant casing pressure for any one fluid level.

(d) It is desirable to use a recording casing pressure gage and a stroke counter during the period of depressing the fluid level.

2. Shut-in pressure measurements: (a) To establish a depth-pressure relationship it is desirable to measure the fluid level as near the pump intake as possible. Prior to the shut-down of the pump, the casing should be shut in and the casing pressure allowed to build up to its highest possible value.

(b) When estimated fluid gradients are used in determining the depth-pressure relationship values corresponding to gas-free oil in clean wells and water in wet wells should be used. Other values may be used only when sufficient corroborative evidence is submitted by the operator. An acceptable method for determining fluid gradients with sonic equipment is as follows:

(1) The casing is shut in and the casing pressure allowed to build up to its highest possible value under which conditions the fluid level is determined.

(2) Keeping the casing shut in, the pump is then shut down for the requisite shut-in period and the fluid level is again measured.

(3) Fluid gradients are then computed assuming that the fluid which entered the well during the period in which the pump was shut down is of the same composition as that produced from the well. Likewise, it is assumed that the fluid over the pump as measured in (1) above, is all oil.

In the presentation of subsurface data to the umpire's office, the terminology and symbols shall conform to those standards proposed in the A. P. I. paper "Oil Well Performance: A Discussion of Proposed Terminology," by B. P. Kantzer and E. G. Trostel, A. P. I. Drilling and Production Practice, 1937.

EXAMPLE NO. 1

SUBSURFACE PRESSURE TEST ON A FLOWING WELL

This well had been producing at the allotment rate for 15 days prior to this test. A static (shut-in) and two flow rates (30 and 60 percent of calculated potential) were chosen for the test. However, three rates (20, 40, and 60 percent of the calculated potential) could have been used.

For the first flow run, the well was set with an $1\frac{3}{4}$ -inch bean. After the well had produced for 24 hours, equilibrium conditions (production rate and pressure remained constant) were attained. An equilibrium condition was ascertained by regular check on the oil gage and tubing pressure. The production rate remained constant at 350 B/D gross for the last 9 hours.

The subsurface pressure recorder was then lowered into the well through the tubing. Stops were made at 1,000, 2,000, 2,870, 3,060, 3,200, 3,400, and 3,600 feet so that the pressure at those points was recorded.

Many stops were made at various depths opposite the producing horizon. Pressures were recorded at these points so that the mean formation pressure, which is the weighed average pressure of the formation, can be accurately calculated. The pressure traverse was completed in approximately an hour and a half time. The oil gage was checked before and after the recorder was in the hole, to insure that the rate of production had remained constant.

For the second flow run, the well was set with a $2\frac{3}{4}$ -inch bean to obtain a higher flow rate. At this rate, the well had attained equilibrium in 24 hours. This was also ascertained by a regular check on the oil gage and tubing pressure. The rate of production was 750 B/D gross.

The recorder was then lowered into the well. Stops were made at the same depths as in the first run. The rate of production was checked as before.

After the flow runs were completed, the well was entirely shut in for 48 hours. From past experience on this well, 48 hours was sufficient for it to reach static equilibrium. A static pressure traverse was made in the same manner as for the flow runs.

The depth pressure data from these three runs are plotted on the Depth versus Pressure Chart as shown on figure No. 1. The mean formation pressures are calculated from these data.

The mean formation pressures are plotted against their corresponding rates of gross production as shown on figure No. 2. The productivity index is the slope of the line drawn through these points. It is the rate differential per pound per square-inch drop in pressure.

The mean pressure at 750 B/D rate is 886 lb./sq.in.

The mean pressure at 350 B/D rate is 1,082 lb./sq.in.

$$\text{Productivity index} = \frac{750 - 350}{1082 - 882} = 2.04 \text{ B/D/lb./sq.in.}$$

The calculated potential is equal to the highest rate plus the product of the productivity index times the quantity, tubing pressure at the highest rate minus 30 pound-per square inch.

Calculated potential = Highest rate + Productivity index (tubing pressure - 30)

Calculated potential = $750 + 2.04 (390 - 30) = 1,485$ B/D gross

at 1% cut Calculated Potential = 1,470 B/D net.

This calculation is graphically shown on figure No. 2. Tubing pressures are also plotted against their corresponding rates on this chart.

A line parallel to the subsurface pressure-rate curve is drawn through the tubing pressure at the highest rate down to 30 pounds per square inch minimum value for surface pressure. The rate corresponding to this intercept is the gross potential, the net potential being determined from the cut.

The next step is to determine the potential factor by use of the discount formula. The highest demonstrated rate in the test is 742 B/D net which is 50.5 percent of the calculated potential of 1,470 B/D net. Since it is less than 60 percent of the calculated potential, a discount is applied to obtain the potential factor. The potential factor is then calculated by using the discount formula as follows:

$$F = D + \frac{D}{P}(P - D)$$

where F = Potential factor

P = Calculated potential

$D = \frac{100}{60}$ of the highest demonstrated rate for a flowing or gas lift well.

$$D = \frac{100}{60} \times 742 = 1237$$

$$\text{Potential factor } F = 1237 + \frac{1237}{1470} (1470 - 1237)$$

$$F = 1433$$

The potential factor may also be determined by graphic means as shown in figure No. 7, curve No. 2. In this test, the highest demonstrated rate is 50.5 percent of the calculated potential, and as shown by the discount chart, the potential factor (or discounted potential) is then 97.5 percent of the calculated potential. In other words, the calculated potential is discounted 2.5 percent.

If the highest demonstrated rate were over 60 percent of the calculated potential, then no discount would be applied. In that case, the potential factor is 100 percent of the calculated potential.

(Chart referred to filed with the committee.)

California Oil Umpire
530 West Sixth Street
Los Angeles, California
Tr 9705

Flowing F 17, Nov. 6, 1939

EXAMPLE NO. 1.—*Subsurface Pressure Test Data Potential Determination for Flowing and Gas Lift Wells*

(Information Confidential)

Company: John Doe Oil Company; field: Oilfield; Lease and well No. A-No. 3;
pool: Main.

PRODUCTION 15 DAYS PRIOR TO TEST

Average gross fluid, B/D 200; average net oil, B/D, 198; total cut, percent, 1.0.
Casing record: Total depth, 3,720 feet; plug depth, 3,700 feet; water string, 11¼ inches; cemented at 1,980 feet; oil string, 8½ inches; landed at 3,060 feet; liner, 6½ inches; landed at 3,700 feet.

Tubing record: Size 3-inch; depth 2,940 feet.

Perforations: From 3,060 feet to 3,700 feet.

Zone: First Zone.

Packer at (None) feet.

Size and type of perforations: 100 M. Vertical slots.

Date of test	Oct. 1, 1939	Oct. 3, 1939	Oct. 5, 1939
Bean:			
Size	18/64	29/64	0.
Hours prior to test	24	24	48.
Production:			
Gross fluid, B/D	350	750	0.
Total cut, percent	1.0	1.0	
Net oil, B/D	346	742	
Gauge period, hours	4	4	
Flowing through	Tubing	Tubing	
Oil gravity, wet, °API	28.1	28.1	
Total gas, Mcf/D	326	720	
Circulated gas, Mcf/D			
Formation gas, Mcf/D	326	720	
Total gas-fluid, ratio	930	960	
Pressures, P. S. I.:			
Casinghead	860	695	890.
Tubinghead	450	390	830.
1,000 feet	595	510	850.
2,000 feet	760	640	870.
2,870 feet	950	775	1,090
3,060 feet	980	800	1,128.
3,200 feet	1,020	832	1,170.
3,400 feet	1,085	885	1,235.
3,600 feet	1,160	955	1,300.
Mean formation	1,082	886	1,229.
Maximum bottom hole temperature °F	164	164	164.

COMPUTED RESULTS

Productivity index 2.04 gross B/D per P. S. I. Calculation:

$$\frac{750 - 350}{1082 - 886} = \frac{400}{196} = 2.04.$$

Calculated potential 1470 net B/D at 30 P. S. I. on tubing calculation: $750 + 2.04(390 - 30) = 1485$ B/D gross.

Potential factor 1433; Calculation:

$$D = \frac{742}{60} = 1237; F = 1237 + \frac{1237}{1470} (1470 - 1237).$$

REMARKS

Two rates are used for calculating productivity index because they are more representative of the well performance.

Data witnessed by C. P. Smith; certified by J. R. Jones; date, Oct. 15, 1939.

EXAMPLE NO. 2

SUBSURFACE PRESSURE TEST ON A PUMPING WELL BY THE RECORDER METHOD

A depth pressure test was made on this well by the subsurface pressure recorder method. The well had been producing at a rate of 90 B/D, the allotment, for 15 days prior to the test. The type of pump in the well is a RCD stationary pump. The recorder can be connected to the bottom of the pump without pulling the tubing.

A total shut-down time of 4 hours was required to pull the rods and place the recorder in the well. The recorder was equipped with a 72-hour clock, so that pressure draw-down while producing and the static pressure build-up could be recorded on the chart during the time allowed.

The well was put back on production at the same pump speed and same length of stroke. Four-hour oil gages were taken regularly throughout the test. During the last 12 hours of the total 22 hours of production time, the well was producing at a constant rate of 90 B/D. (This is shown on figure No. 3 where the production rate is plotted against time.)

The well was then shut in entirely with the casing and tubing closed. The recorder remained in the well for 48 hours to record the static pressure build-up.

After the recorder was removed from the well, the pressure data taken on the chart of the recorder was plotted on figure No. 3 with pressure versus time.

On figure No. 3, the pressure-time curve shows that equilibrium static pressure had been attained in 32 hours which is ascertained by a constant pressure during the last 16 hours of test. It also shows that an equilibrium condition was also attained during the production test, which is ascertained by a constant producing pressure and a constant producing rate for 12 hours.

The pressure at only one depth is recorded. The recorder is located at a depth of 3,217 feet which is the midpoint of perforations. Assuming that the oil gradient along the perforated interval at both producing and static conditions is constant, the pressures at midpoint are the mean formation pressures.

Then to calculate the productivity index of the well, the demonstrated rate of production is divided by the difference between the static pressure and the producing pressure measured at the recorder. The demonstrated rate is 90 B/D gross, the producing pressure is 541 lb./sq. in., and the static pressure is 818 lb./sq. in., as shown in figure No. 3. The productivity index is calculated as follows:

$$\text{Productivity Index} = \frac{90}{818 - 541} = 0.325 \text{ B/D/lb./sq. in.}$$

To calculate the calculated potential, the productivity index is multiplied by the static pressure as follows:

Calculated Potential = $0.325 \times 818 = 266$ B/D gross at 1.0% cut, calculated potential = 263 B/D net.

This can also be graphically determined as shown on figure No. 4.

The potential factor is then calculated by the following discount formula:

$$F + = D + \frac{D}{P} (P - D)$$

where F = Potential Factor

D = Highest demonstrated rate for pumping well.

P = Calculated potential.

The demonstrated rate for this test is 89 B/D net, and the calculated potential is 263 B/D net.

$$F = 89 + \frac{89}{263} (263 - 889)$$

$$F = 148$$

The potential factor may also be determined by using curve No. 1 on the discount chart (fig. No. 7). The demonstrated rate of 89 B/D is 33.8 percent of the calculated potential, and reading from the chart, the potential factor is 56.2

percent of the calculated potential. By using such a low test rate of production, the discount is 43.8 percent.

(Chart referred to filed with the committee.)

California Oil Umpire
530 West Sixth Street
Los Angeles, Calif.
TR 9705

Pumping F
F 14
10 6 39

EXAMPLE NO. 2. SUBSURFACE PRESSURE TEST DATA POTENTIAL DETERMINATION
FOR PUMPING WELLS (INFORMATION CONFIDENTIAL)

Company: John Doe Oil Co. Field: Oilfield.
Lease and well No. B No. 1 Pool: Brea.

PRODUCTION 15 DAYS PRIOR TO TEST

Average gross fluid, B/D 90; average net oil, B/D 89; total cut, percent 1.0.

CASING RECORD

TUBING RECORD

Total depth, 3,389 feet. Plug depth, 3,375 feet. Size, 2½ inch. Depth, 3,217 feet. Packer at: None.
Water string, 13 feet. Cemented at, 708 feet. Zone: First zone. Size and type of perforations: 80 M. Vertical slots.
Oil string, 8⅞ feet. Landed at, 3,059 feet.
Liner, 6⅞ feet. Landed at, 3,375 feet.
Perforations: From 3,058 feet; to 3,375 feet.

PRODUCTION EQUIPMENT

Type of pump: RCD stationary pump; pump size: 2½ inches; plunger diameter: 2¼ inches.

Test	"A"	"B"	"C"	"D"	"E"	"F"
Date of test	10-6-39	10-8-39				
Length of time at test rate, hours	15 days	48 hrs.				
Production rate, B/D gross	90	0				
Total cut, percent	1.0					
Net oil rate, B/D	89	0				
Gage period, hours	4					
Pump depth, feet	3,217	3,217				
Pump strokes per minute	10					
Length of stroke, inches	30					
Casing pressure, P. S. I.	60	120				
Sonic						
Gas column weight, P. S. I.						
Total pressure on fluid surface, P. S. I.						
Fluid level, feet						
Fluid gradient in fluid casing, P. S. I. feet						
Pressure at pump, P. S. I.						
Recorder:						
Recorder depth, feet	3,217	3,217				
Pressure at recorder, P. S. I.	541	818				
Temperature, °F.	152	152				
Mean formation pressure, P. S. I.	541	818				

Oil gravity: {Wet
Dry 20.6° Api. Gas fluid ratio, 100 cu. ft./bbl.; gas gravity, 0.8.

COMPUTED RESULTS

Minimum mean formation pressure with fluid level at {pump
top of perforations... P. S. I.
Calculation: (Pump is at midpoint of perforation. Fluid level may be drawn down to pump.)

Gross productivity index: 0.325. Calculation: $\frac{90}{818-541}=0.325.$

Calculated potential: 263 B/s net. Calculation: $0.325 \times 818 = 266$ B/D gross = 263 B/D net.

Potential factor: 148. Calculation: $89 + \frac{89}{263}(263 - 89) = 89 + 59 = 148$.

(For recorder method, present pressure and production vs time chart.)

Remarks: The well was in equilibrium condition in both tests as shown on the accompanying pressure and rate vs time chart.

Company taking measurements ----- by -----

Data witnessed by C. P. Smith. Certified by J. R. Jones. Date 10-15-39.

Potential factor ----- Assigned for month of -----

EXAMPLE No. 3

SUBSURFACE PRESSURE TEST ON A PUMPING WELL BY THE SONIC METHOD

The general principle of the sonic method is to determine the position of the fluid level in the casing at different pressures on the fluid surface when the well is producing at a constant rate. At a constant rate of production, the difference in the pressure exerted on the fluid surface, reflected by a change in casing pressure, is equal to the pressure exerted by the column of fluid displaced. This difference in pressure on the fluid surface divided by the distance between the fluid levels is the gradient of the oil column. Knowing the pressure on the fluid surface and the oil gradient, the pressure at the bottom of the well can then be calculated.

The fluid level is determined by a sonic recording device which measures the time of reflection of the sound waves. The pressure exerted on the fluid surface is the pressure at the casing head plus the pressure exerted by the column of gas.

Two rates of production were chosen for this test. For the first test rate, the well was producing at approximately the allotment. The back-pressure regulator (used to insure a constant casing pressure), was set at 160 lb./sq. in. The oil gage was checked regularly to insure a constant rate of production.

After a constant rate of production had been held for a sufficient length of time, the fluid level and casing head pressure were measured. Then the fluid was depressed for a considerable distance by adjusting the back-pressure regulator to a higher casing pressure. Other operating conditions remained the same, in order to maintain the same rate of production. The well was produced for 24 hours, and during this period, the oil was gaged at regular intervals. When a constant rate of production was insured, the fluid level and casing head pressure were again measured.

With two fluid levels and their corresponding casing head pressures determined for a constant rate of production, the oil gradient in the casing can be calculated as follows:

TEST A

Casing pressure	=	160 lb./sq. in.
Gas column weight	=	112 lb./sq. in.
Total pressure on fluid surface	=	172 lb./sq. in.
Depth of fluid level	=	2,460 feet

TEST B

Casing pressure	=	463 lb./sq. in.
Gas column weight	=	57 lb./sq. in.
Total pressure on fluid surface	=	520 lb./sq. in.
Depth of fluid level	=	4,220 feet
Oil gradient	=	$\frac{520 - 172}{4220 - 2460} = 0.198$ lb./sq. in./ft.

The data are plotted on the depth versus pressure chart in figure No. 5. The gradient line is extended down to the midpoint of perforations. The pressure corresponding to this intercept is the mean formation pressure of 722 lb./sq. in. for the rate of 76 B/D gross.

The second test rate of 161 B/D gross is more than twice the first test rate. The difference is more than the allotment for the well. The procedure and calculation for this test are the same as those for the first test and need not be

¹ Determined by Dier's formula.

repeated. The pressure on the fluid surface and the depth of the fluid level for the second rate are plotted on figure No. 5 together with the first rate. The mean formation pressure corresponding to this intercept for the second rate is 407 lbs./sq. in.

The producing oil gradient varies in different sizes of pipe. The gradient in the 4¾-inch liner is generally less than the gradient in the 6¾-inch casing. However, there are only 45 feet of 4¾-inch liner; therefore, the correction is very small for this well and may be neglected.

The productivity index is calculated as follows:

$$\begin{aligned}\text{Productivity index} &= \frac{161 \text{ B/D} - 76 \text{ B/D}}{722 \text{ lbs./sq. in.} - 407 \text{ lbs./sq. in.}} \\ &= 0.27 \text{ B/D/lb./sq. in.}\end{aligned}$$

The minimum mean formation pressure is the producing pressure at the mid-point of the perforation (considering the gradient to be uniform), when the fluid level is drawn down to the top of the perforations.

The calculation is as follows:

$$\begin{aligned}\text{Minimum Mean Formation Pressure} &= 0.147 \times \frac{5260 - 5215}{2} \\ &= 3 \text{ lb./sq. in.}\end{aligned}$$

The calculated potential is equal to the sum of the highest demonstrated rate plus the product of the productivity index times the available draw down, which is the difference between the mean producing pressure at the highest rate, and the minimum mean formation pressure.

$$\begin{aligned}\text{Calculated potential} &= 161 + 0.27 (407 - 3) \\ &= 270 \text{ B/D gross}\end{aligned}$$

$$\text{At 2\% cut calculated potential} = 265 \text{ B/D net}$$

This is shown graphically on Figure No. 6.

In the same manner as in example No. 2, the calculated potential is discounted to obtain the potential fact as follows:

$$\begin{aligned}F &= D + \frac{D}{P} (P - D) \\ &= 158 + \frac{158}{265} (265 - 158) \\ F &= 222 \text{ B/D}\end{aligned}$$

The result may also be calculated from the discount chart, curve No. 1, where the highest demonstrated rate of 158 B/D is 59.6 percent of the calculated potential. The potential factor is then 83.6 percent of the calculated potential and 83.6 percent of 265 B/D is 222 B/D. By using a 59.6 percent rate, the calculated potential is discounted 16.4 percent.

(Chart referred to filed with the committee.)

CALIFORNIA OIL UMPIRE
530 West Sixth Street,
Los Angeles, California
TR 9705

Pumping F
F 14
October 6, 1939

EXAMPLE NO. 3. SUBSURFACE PRESSURE TEST DATA POTENTIAL DETERMINATION FOR PUMPING WELLS

(Information confidential)

Company: John Doe Oil Company; field: Stephens; lease and well No. C-3;
Pool: Wilcox

PRODUCTION 15 DAYS PRIOR TO TEST

Average gross fluid, B/D 70; average net oil, B/D, 68; total cut, percent, 2.

Casing record: Total depth, 5,260 feet; plug depth, 5,260 feet; water string,

8½ feet; cemented at 4,060 feet; oil string, 6½ feet; landed at 5,215 feet; liner 4¾ feet; landed at 5,260 feet.

Perforations: From 5,215 feet to 5,260 feet; upper zone, 100 M vertical slots.

Tubing record: Size, 2½-inches; depth, 5,133 feet.

Production equipment: Type of pump: RCD stationary; pump size, 2½-inch; plunger diameter, 2-inch.

Test	"A"	"B"	"C"	"D"
Date of test.....	Oct. 10	Oct. 11	Oct. 13	Oct. 14
Length of time at test rate, hours.....	24	48	24	48
Production rate, B/D gross.....	76	76	161	161
Total cut, percent.....	2	2	2	2
Net oil rate, B/D.....	74	74	158	158
Gauge period, hours.....	4	4	4	4
Pump depth, feet.....	5,133	5,133	5,133	5,133
Pump strokes per minute.....	17	17	21	21
Length of stroke, inches.....	40	40	44	44
Casing pressure, P. S. I.....	160	463	52	268
Sonic:				
Gas column weight, P. S. I.....	12	57	5	37
Total pressure on fluid surface, P. S. I.....	172	520	57	305
Fluid level, feet.....	2,460	4,220	2,862	4,550
Fluid gradient in 6¾-inch casing, P. S. l./ft.....	0.198	0.198	0.147	0.147
Pressure at pump, P. S. I.....	700	700	390	390
Mean formation pressure, P. S. I.....	722	-----	407	-----

Oil gravity: Wet 14.2° API; gas fluid ratio, 400; gas gravity, 0.8.

COMPUTED RESULTS

Minimum mean formation pressure with fluid level at top of perforations, 3 P. S. I.

Calculation: $147 \times \frac{5,260 - 5,215}{2} = 3$ p. s. i.

Gross productivity index: 0.27; calculation: $\frac{161 - 76}{722 - 407} = 0.27$.

Calculated potential: 265 B/D net; calculation: $161 + 0.27 \times (407 - 3) = 270$ B/D gross.

Potential factor: 222; calculation: $158 + \frac{158}{265} (265 - 158)$.

(For recorder method, present pressure and Production versus Time Chart.)

Remarks: Consistent oil gauges were taken before and during the test.

Data witnessed by: R. M. Smith; certified by M. O. Lewis; date: October 14, 1939.

Mr. WOLVERTON. You say you have a theory of bottom-hole pressure?

Mr. AUBERT. Bottom-hole-pressure theory in the determination of well potential.

Mr. WOLBERTON. What is it that producers need to be educated on? In other words, you have to wait until the producers understand the advantages of it before it is thoroughly accepted?

Mr. AUBERT. Quite true.

Mr. WOLVERTON. Now if it is as good as you say it is and that it eventually will be effective with producers, and I understand it is your opinion they will voluntarily accept it, why shouldn't it be a matter of law.

Mr. AUBERT. Well, it is just this way: This is my own personal opinion about it, that we feel it is far better to try and educate the producers to these advanced methods rather than trying to force those methods upon them.

It is interesting to note that the potentials of some 700 wells have been established by the use of the bottom-hole-pressure method up to this time. We feel that the information which the operators and the central committee gained from these bottom-hole-pressure surveys will be of inestimable value in the future to all concerned, for, besides giving the operator very valuable information about his wells, it will also give the technical staff of the central committee a comprehensive insight into the behavior and decline of highly curtailed wells.

It would be a long and arduous task to recite the past record of the central committee in its efforts to obtain conservation. I believe this can best be accomplished by giving you the record in graphic form. I would like to give you this.

May I proceed now? This graph shows the allotment, production, and the percent of excess or underage, by months, beginning with 1931 and ending December 31, 1939, under various forms of control, and it is of particular interest here.

Due to the fact that the excess production from June 1, 1939, to December 31, 1939, is nominal, ranging from 1.5 percent to a high of 2.70 percent and back to 1.6 percent, all of which compares very favorably with the excess existent during the time of the N. R. A., under which we had enforcement of curtailment by the courts.

I would like to give you a comparison of the situation that existed at the time of the N. R. A. with the conditions that existed between June 1 and December 31 of this year. I will refer first to the N. R. A. period and secondly to the uniform-formula period. The number of wells under the N. R. A. period in California were 15,280—by that—

Chairman COLE. That is not shown on here.

Mr. AUBERT. No; the number of wells is not shown on the chart.

Chairman COLE. All right.

Mr. AUBERT. The number of wells under the uniform formula period from June 1 to December 31, 1939, were 18,550. Percent of increase in wells, 21.4. The number of fields under the N. R. A. period were 76, and under the uniform-formula period, 93, an increase in the number of fields of 22 percent. The State allotment under the N. R. A. period was 472,800 barrels a day; under the uniform-formula period, 598,000 barrels a day, an increase of 25.8 percent and the State production during the N. R. A. period was 479,100 barrels per day. The State production under the uniform-formula period was 609,500 barrels per day, an increase of 27.2 percent. The State potential during the N. R. A. period was 1,400,000 barrels per day. During the uniform-formula period, the State potential was 2,523,000 barrels per day, an increase of 80 percent. From the above figures, it appears that the task of obtaining compliance with allotments—

Mr. COLE. What percentage of that increase represents new discoveries of the marginal type?

Mr. AUBERT. Undoubtedly the new potential is all new discoveries.

Mr. COLE. I know; but what percentage of the 80-percent increase would be marginal development along the coast, if you know?

Mr. AUBERT. About 40,000 barrels a day.

Mr. COLE. Considerable of it?

Mr. AUBERT. No, I don't think a considerable portion of it; the majority of it, I believe, is in the San Joaquin Valley, all those deep-seated fields.

Mr. COLE. If you have the figure, when you are correcting your statement, will you put it in?

Mr. AUBERT. All right.

Mr. COLE. Break down that statement, please, if you do have the break-down of the 80-percent increase.

Mr. AUBERT. Where the new discoveries were?

Mr. COLE. That is right.

Mr. AUBERT. Yes; I believe I can get that figure.

Mr. WOLVERTON. Is that increase in the potential due in any measure to improved methods of improving oil?

Mr. AUBERT. I don't believe I understand that, increase due to improved methods of producing oil?

Mr. WOLVERTON. The degree of recovery, has there been an improvement in the degree of recovery that would account for part of that increase?

Mr. AUBERT. Yes; I believe so.

Mr. WOLVERTON. Has there been any recovery with respect to the width of the oil sands that would account for some of that in fields already known?

Mr. AUBERT. No; not very much; not a great deal. Do you mean deeper sands in already-known fields and so forth?

Mr. WOLVERTON. Yes.

Mr. AUBERT. Not to any great extent.

Mr. WOLVERTON. I was under the impression there had been a very appreciable increase in that.

Mr. AUBERT. No; I would not say so. That would be my opinion. I could check that.

Mr. WOLVERTON. I do not happen to have the figures before me but I remember reading of that and I can give it to you at a later time.

Mr. AUBERT. The bulk of this increased potential, I can assure you, is from new discoveries; from the above figures it appears that the task of obtaining compliance with allotments during the past 7 months has been increasingly difficult by reason of the tremendous increase in the State's potential, but that nevertheless compliance with the State allocations under our voluntary system has been carried out, as that the relationship between allotments and potential during the N. R. A. period and the period of the past 7 months has practically been the same.

In conclusion, may I restate that I have been in close association with the task of allocation of oil in the State of California for the past 3½ years. The allocation committee has given a great deal of consideration to various means of allocation to the individual wells. We have found that well potential and depth are about the only factors we could consider which would give fair and reasonable results. When we took into consideration other factors, such as gas-oil ratio, we found that we would be giving different allotments to wells of similar size which, if located on adjoining parcels of different ownership, would create drainage by the well having the larger allotment. We are advised by competent legal counsel that the law of capture prevails in the State of California and that it would be impossible for an operator to accept and adhere to an allotment which permitted his land to be drained by his neighbor. That is the point you asked me about, bottom-hole pressure.

Mr. COLE. Yes.

Mr. AUBERT. And an allocation on the basis of bottom-hole pressure yields you some very peculiar results. We are not at this time prepared—in other words, our study is not far enough along in our potential study so that we could give you any definite answer as to that.

Mr. COLE. Have you read the formula laid down in H. R. 7372?

Mr. AUBERT. Yes.

Mr. COLE. Do you find any difficulty with the requirements outlined there in determining what shall be wasteful production?

Mr. AUBERT. Yes; I do.

Mr. COLE. What part of it do you disagree with?

Mr. AUBERT. I find that you are getting into a situation such as this: That it becomes very, very complicated; in other words, one factor nullifies another, that the more factors you inject into the problem, the more difficult the problem becomes.

Mr. COLE. So far, as I recall, you have mentioned practically all of the considerations outlined in this bill that you follow in California, but there may be others. Are you able to say just which ones? Take page 67 of this bill, subsection 1 on down. With which of those do you disagree?

Mr. AUBERT. For the basis of allocation?

Mr. COLE. Yes or no, as the basis of ultimate allocation of the waste prevention statute dealing with this subject, if the administering authorities take into consideration what the bills direct.

Mr. AUBERT. Undoubtedly it will end up in allocation; it is bound to.

Mr. COLE. Why?

Mr. AUBERT. Those are certain factors, and you come into the situation where you have an unequal distribution or allocation if all of the factors were used.

Yes; it is water drive, and gas and so forth, and I do not know just exactly what significance you could apply to a water-drive or a gas-drive field. What factor would you apply to gas drive as opposed to water drive? Let us use the ratio of reserve which somebody else brought in up here. Assume you allocated the oil to the various fields on the basis of reserves, which would—the production should be in accordance with the reserves—what are you going to do with the small marginal wells that have very small reserves? You would have to eliminate them. That is waste to eliminate those wells and shut them down, so you could not do that.

Mr. COLE. Well, to follow your line of thought farther, why?

Mr. AUBERT. Because the fields having a tremendous reserve would get all of the allocation.

Mr. COLE. No; not necessarily.

Mr. AUBERT. If you allocate oil on the basis of reserves, the ones that have the largest reserves would get the biggest allocation.

Mr. COLE. That is one consideration in determining what the smaller well produces, without avoidable waste. I am talking about the formula laid down in the bill—if you were administering a bill of this kind, in making the determination required for each field as a whole, or for any number, giving such information as the bill says may be obtainable as to "1," and on down to "10," to be taken into consideration by the commissioner. Now, those are proper consider-

ations for a commissioner in your judgment to have before him in determining what rules and regulations are to be laid down in order to prevent waste?

Mr. AUBERT. Well, I believe they are very excellent rules, as far as the determination of the waste is concerned.

Mr. COLE. That is all I wanted to know.

Mr. AUBERT. But if any allocation is made on that basis or on any one of these factors, I am inclined to believe that you will find these rules would all have to be tempered and would have to be modified, so that probably in the long run you would come out with very much the same situation as we have now. Another factor influencing the method of allocation employed is the relationship of refinable to nonrefinable crude. This is very important, for if an allocation is made without regard to this relationship, it might well result in an increase in nonrefinable crude and a decrease in refinable crude, which would add to surface stocks of the heavier crude, already more than adequate.

Unfortunately, refining technique has not yet developed to a point where all types of crude have the same value, regardless of content.

Mr. WOLVERTON. Do you mean with respect to the production of gasoline?

Mr. AUBERT. Yes.

Mr. WOLVERTON. How do you account for the fact that in California that the amount of gasoline per barrel of crude is so much less than in other fields, particularly with reference to the crude, we will say, in Texas, which has practically the same gravity, as I understand it, as your California oil?

Mr. AUBERT. Well, I don't know.

Mr. WOLVERTON. You know that condition exists, don't you?

Mr. AUBERT. I do know that there is a higher recovery from East Texas crude than from California.

Mr. WOLVERTON. How do you account for that fact when they have both the same gravity, 27 I think it is?

Mr. AUBERT. You see I am referring to the whole State of California, not one particular part. We produce a lot of heavy oil here.

Mr. WOLVERTON. I am speaking of the average. How do you account for the fact the amount of gasoline produced from a barrel of crude is much less here than in Texas?

Mr. AUBERT. Well, I don't know. I really cannot answer that question and I prefer to leave that question to some refinery expert.

Mr. WOLVERTON. I have figures here. Do you have knowledge of the fact that condition exists?

Mr. AUBERT. No; I don't. I would much prefer to leave that to some refinery expert.

Mr. WOLVERTON. It is an important matter because after all the price of gasoline to the consumer naturally depends on the number of gallons per barrel of crude he recovers from it. There is the difference I carried in my mind of something like 2 cents a gallon in the case of gasoline at the refinery in California as compared to East Texas.

Mr. AUBERT. That is a question I would rather not answer, Mr. Wolverton. I would much prefer to leave that to some refinery expert.

Mr. WOLVERTON. I am mentioning it to you so that those who follow you can make some explanation of it.

Mr. AUBERT. Very well. It is our firm belief that every operator in the State is interested in conservation and uses his best efforts to conserve oil and gas. It is our feeling that wherever the operator has been able to practice conservation he has done so. However, this industry deals with the practical problem of supplying the products of crude petroleum to the general public, and it must conduct itself along practical lines. Even though H. R. 7372 embodies excellent engineering theories, it is our thought that endeavor to control an industry solely from an engineering standpoint rather than from a practical standpoint could not well succeed.

Mr. COLE. Thank you, Mr. Aubert.

I place in the record at this time a letter from Mr. F. E. Foster, managing director of the California Oil & Gas Association, with a copy of resolutions attached to it.

(The said letter and resolutions are in the words and figures following:)

Honorable Wm. P. COLE, Jr.,

Chairman, Cole Sub-Committee,

Biltmore Hotel, Los Angeles, California.

DEAR MR. COLE: This is to advise you that a resolution in connection with the Cole Bill was passed by our Board of Directors at a recent meeting. A copy of the resolution is attached hereto.

Yours very truly,

F. E. FOSTER, *Managing Director.*

RESOLUTION OPPOSING COLE BILL, H. R. 7372

[Passed by the California Oil and Gas Association, Los Angeles, California, Thursday, January 11, 1940]

Whereas there has been introduced in the Congress H. R. 7372 which purports to be designed to aid in the conservation of the petroleum reserves of the national since such reserves are essential to national defense, and

Whereas an examination of said H. R. 7372 reveals that its provisions would not further the conservation of the nation's oil reserves but would merely centralize control of the oil industry of the U. S. in a Federal bureau, and

Whereas the California Oil and Gas Association is aware of the oil industry's responsibility to the nation from the point of view of the national defense, and

Whereas the oil industry spurred not by government but by competition and its own inherent drive toward better utilization of crude oil, has developed; and is constantly developing, new methods of discovery, production, refining and handling of oil, all of which improved methods have reduced avoidable loss to a minimum, and

Whereas the State governments, the Interstate Compact Commission, the so-called "Connally Hot Oil Law," and, in California a voluntary cooperative organization, all effectively prevent "waste" of oil, and

Whereas the California Oil and Gas Association believes that the national defense will be best served if the oil industry is left to discover and develop new methods of oil discovery, oil production, oil refining, and oil transportation, as has been done through all the history of the free oil industry since its inception, and

Whereas the California Oil and Gas Association is convinced that to place the oil industry under Federal bureaucratic control will inevitably tend to hamper the development of new techniques and methods of more efficient discovery and use of oil and hence will tend actually to waste of the nation's oil reserves: Now therefore, be it

Resolved, That the California Oil and Gas Association is opposed to the enactment of H. R. 7372 into law, and be it further

Resolved, That the President of the California Oil and Gas Association be directed to make such dissemination of this resolution as in his judgment seems fitting.

Mr. COLE. Before we adjourn, it was understood from the floor that the group now before us asked for 2 hours and already have used pretty nearly 2 days. You have Mr. Pemberton to follow?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. Are you to follow?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. Are you the last witness of this group?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. How long is your statement?

Mr. PEMBERTON. It will take me about a half hour to read it.

Mr. COLE. Then Mr. Hogan, of the Valley Oil Producers Association, how long will you take?

Mr. HOGAN. It will take about 35 or 40 minutes.

Mr. COLE. And the Retail Petroleum Dealers Association, Mr. Wiley: How long will you take?

Mr. WILEY. About 15 or 20 minutes.

Mr. COLE. And the Producers Agency of California: Are they all here, that is, Mr. Cranston and quite a number of others?

Mr. ALLEN. I have a schedule that I wish to present to you. The total time mentioned in this will be 30 minutes for Cranston and 20 minutes for Mr. Morrison——

Mr. COLE. Well, that is the same as you wired me, as to the length of time? Are you Mr. Cranston?

Mr. ALLEN. I am Mr. Allen.

Mr. COLE. It will be the same as you wired. We will adjourn now until 9:30 tomorrow morning. One moment, please. The hearing in the morning will be across the hall, in Conference Room No. 1, just on the opposite side of the corridor, where we held the hearing in 1934. This room will not be available tomorrow. 9:30 tomorrow morning.

(Thereupon an adjournment was taken to 9:30 a. m., Wednesday, January 17, 1940.)

PETROLEUM INVESTIGATION

WEDNESDAY, JANUARY 17, 1940

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE OF THE COMMITTEE
ON INTERSTATE AND FOREIGN COMMERCE.
Los Angeles, Calif.

Mr. COLE. All right, gentlemen, the committee will come to order, please. Is Mr. Aubert in the room?

Mr. AUBERT. Yes, sir.

Mr. COLE. I want to ask you one question. I understood you to say last night, how many producing wells there were in California?

Mr. AUBERT. As of December 1, 18,554.

Mr. COLE. Then in your allocation set-up you divide the total by 18,764, was it?

Mr. AUBERT. No; 18,554.

Mr. COLE. By 18,554.

Mr. AUBERT. No, no. We allocate the oil to those 18,000 wells on the basis of our uniform formula.

Mr. COLE. So that each well, according to the uniform formula, is privileged to produce a definite amount?

Mr. AUBERT. That is correct.

Mr. COLE. Of the 18,000 plus wells, how many are actually producing?

Mr. AUBERT. I do not know exactly the number of shut-in wells. There are a number of wells that are shut in for various reasons, but I would say not over 3,000 shut-in wells.

Mr. COLE. Are you sure of that?

Mr. AUBERT. I am pretty sure.

Mr. COLE. Well, assuming it would be 3,000, what becomes of the amount allocated to the 3,000 wells that are not operated?

Mr. AUBERT. That may be transferred to other wells on the property.

Mr. COLE. It may be and is, is it not?

Mr. AUBERT. It is, yes.

Mr. COLE. On the property?

Mr. AUBERT. Yes.

Mr. COLE. Not necessarily wells in that particular pool, but in an entirely different pool.

Mr. AUBERT. Well, there are some transfers made, which we call defensive transfers, where a group of operators are producing more than their allotment in one area, and they transfer that overproduction to another area in which there are some shut-in wells and make their total allotment come out even.

Mr. COLE. I expect the committee to see some of the wells not operating at this time in high-cost areas or in low-cost areas. It is possible under the plan that you have outlined to take from a high-cost section and allocate to what, according to your formula, is a low-cost areas; is that possible?

Mr. AUBERT. Yes, it is possible.

Mr. COLE. It is done?

Mr. AUBERT. Yes; it is done, although the central committee has always gone on record that they do not favor such transfers.

Mr. COLE. They do not favor it, but it is done?

Mr. AUBERT. Yes.

Mr. COLE. Thank you very much.

Mr. AUBERT. I would like at this time to ask that the exhibits I put in last night, may they be included in the record?

Mr. COLE. With the exception of one it seems to me that——

Mr. AUBERT. Just the written report.

Mr. COLE. What is the written report? Will you identify that? This is off the record.

(Chart referred to filed with the committee.)

Allocation table effective Dec. 1, 1939

[California oil umpire]

Potential	Allotment according to depth (feet)										
	0-2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000
5	15	15	15	15	15	15	15	15	15	15	15
10	110	110	110	110	110	110	110	110	110	110	110
11	111	111	111	111	111	111	111	111	111	111	111
15	13.8	15	15	15	15	15	15	15	15	15	15
18	15.3	18	18	18	18	18	18	18	18	18	18
20	16.2	19.7	20	20	20	20	20	20	20	20	20
25	18.2	22.3	25	25	25	25	25	25	25	25	25
26	18.6	22.7	26	26	26	26	26	26	26	26	26
30	20.1	24.4	28.8	30	30	30	30	30	30	30	30
35	21.8	26.3	31.2	35	35	35	35	35	35	35	35
40	23.4	28.1	33.2	38.3	40	40	40	40	40	40	40
45	25	29.8	35.1	40.6	45	45	45	45	45	45	45
50	26	31	36.8	42.6	48.3	50	50	50	50	50	50
56	28	33	38.7	44.8	51.0	56	56	56	56	56	56
60	29	34	40	46.1	52.6	58.8	60	60	60	60	60
68	32	37	42	48.7	55.4	62.4	68	68	68	68	68
70	32	37	43	49.3	56.1	63.2	69.7	70	70	70	70
80	35	40	46	52	59.3	66.8	74.4	80	80	80	80
81	35	40	46	53	60	67.1	74.8	81	81	81	81
90	37	43	48	54	62	70.0	78.1	86.2	90	90	90
95	39	44	50	56	64	71	79.8	88.2	95	95	95
100	40	45	51	58	65	73	81	90.1	98.3	100	100
110	42	47	54	60	68	76	84	93.4	102.6	110	110
120	44	50	56	63	70	78	87	96	106.1	115.6	120
126	46	51	57	64	72	80	89	98	108.0	118.0	126
130	47	52	58	65	73	81	90	99	109	119.4	128.8
140	49	54	61	68	75	84	93	102	112	122.7	133.2
150	51	57	63	70	78	86	95	105	115	126	136.8
160	53	59	65	72	80	88	97	107	118	129	140
170	55	61	67	74	82	91	100	110	120	131	143
180	57	63	69	76	84	93	102	112	123	134	146
190	59	65	71	78	86	95	104	114	125	137	148
200	61	67	73	81	88	97	107	117	128	139	151
210	63	69	75	83	91	99	109	119	130	141	154
220	65	71	77	85	93	101	111	121	132	144	156
230	67	73	79	87	95	103	113	123	134	146	158
240	69	75	81	89	97	105	115	125	136	148	161
250	71	77	83	91	99	107	117	127	138	150	163
260	73	79	85	92	101	109	119	129	141	152	165
270	75	81	87	94	102	111	121	131	143	155	167
280	77	82	89	96	104	113	123	133	145	157	169
290	79	84	91	98	106	115	125	135	147	159	171
300	80	86	93	100	108	117	127	137	149	161	173
320	84	90	96	104	112	121	131	141	152	165	177
340	87	93	100	107	115	124	134	145	156	168	181
360	91	97	103	111	119	128	138	149	160	172	185
380	94	100	107	114	122	131	141	152	164	176	189
400	98	103	110	118	126	135	145	156	167	179	193
420	101	107	113	121	129	138	148	159	171	183	196
440	104	110	117	124	133	142	152	163	174	187	200
460	107	113	120	127	136	145	155	166	178	190	203
464	108	114	121	128	137	146	156	167	178	191	204
544	121	126	133	141	149	159	169	180	191	204	
624	133	139	145	153	162	171	181	192	204		
703	144	150	157	165	173	183	193	204			
780	155	161	168	176	184	194	204				
853	165	171	178	186	195	204					
922	175	181	188	195	204						
987	183	189	196	204							
1,046	191	197	204								
1,100	198	204									
1,147	204										

1 Same as potential.

Schedule showing allotment in barrels daily for California, as fixed by oil administrator and production in barrels daily during period of curtailment under N. R. A.—September 1933 to May 1935, inclusive

	Allotment fixed by Oil Administrator, barrels per day	Production, American Petroleum Institute barrels per day	Excess barrels per day	Percent allotment of production barrels per day
1933				<i>Percent</i>
September.....	480,000	489,128	9,128	98.14
October.....	455,000	473,065	18,065	96.18
November.....	455,000	464,452	9,452	97.96
December.....	450,000	475,022	25,022	94.75
1934				
January.....	437,600	456,886	19,286	95.77
February.....	437,600	449,778	12,178	97.29
March.....	453,900	474,531	20,631	95.65
April.....	462,500	482,426	23,926	95.86
May.....	462,500	486,152	23,652	95.13
June.....	500,300	515,517	15,217	97.04
July.....	509,400	517,878	8,478	98.36
August.....	490,200	493,279	3,079	99.37
September.....	457,000	468,427	11,427	97.56
October.....	452,300	466,251	13,951	97.00
November.....	462,000	477,846	15,846	96.68
December.....	473,900	478,800	4,900	98.97
1935				
January.....	473,900	500,365	26,465	94.71
February.....	488,600	498,538	9,938	98.00
March.....	492,600	497,781	5,181	98.95
April.....	493,300	472,471	-20,829	104.40
May.....	494,200	494,910	710	99.85

NOTE.—Production figures from U. S. Bureau of Mines.

CENTRAL COMMITTEE OF
CALIFORNIA OIL PRODUCERS,
Los Angeles, January 16, 1940.

HON. WILLIAM P. COLE, JR.
Biltmore Hotel, Los Angeles, Calif.

DEAR SIR: At a meeting held on January 12, 1940, the Central Committee of California Oil Producers passed the following resolutions:

"That a committee be appointed to present the facts of voluntary curtailment to the Cole committee on H. R. No. 7372."

"That Mr. Lawrence Vander Leek and Mr. L. L. Aubert be sent as representatives of the Central Committee of California Oil Producers to appear before the Cole committee at their hearing in the Biltmore Hotel, January 16, 17, and 18, with the understanding that they have the authority to call Mr. J. R. Pemberton, or any other member of the central committee, if they so deem it necessary in their best judgment."

"That the central committee feels that the State of California will not be best served by any Federal control bill such as the proposed H. R. No. 7372."

Very truly yours,

B. M. BOHANON, *Secretary.*

MR. COLE. Mr. Aubert, Mr. Wolverton wants to ask you a question or two.

MR. WOLVERTON. It is my recollection, Mr. Aubert, that you were the witness to whom I addressed some questions with reference to the amount of gasoline per barrel of crude that is produced in California. I made a comparison with the Texas east coast. I should have made that comparison with the Texas Gulf coast.

MR. AUBERT. Yes.

Mr. WOLVERTON. And I want to bring that to your attention and to the attention of any others I spoke to on the matter so they would know when saying the Texas east coast I should have said the Texas Gulf coast.

Mr. AUBERT. Yes.

Mr. WOLVERTON. Where the gravity is the same as it is here in California, 27.

Mr. AUBERT. Yes.

Mr. WOLVERTON. It was a mistake on my part to have said "east" instead of "Gulf."

Mr. AUBERT. I would like to still pass that question along. There is a man who will talk on refinery technique, and I believe he can answer your question.

Mr. WOLVERTON. Very well.

Mr. COLE. Mr. Aubert, in this allocation set-up there is some phase of it I do not get entirely clear. Assuming that Company A has 150 wells, do you direct the production from each of the 150 wells or do you just say to that company, "You are permitted to produce so much," and leave it to them to allocate to each well?

Mr. AUBERT. We make the allocation by wells and by properties.

Mr. COLE. By companies? Does that mean by companies?

Mr. AUBERT. And by companies.

Mr. COLE. Then answering my question as to Company A for 150 wells?

Mr. AUBERT. Yes.

Mr. COLE. Your records might show well No. 1, 40 barrels per day, while the actual production of that well it is possible would be 150.

Mr. AUBERT. Possibly.

Mr. COLE. Is that true?

Mr. AUBERT. That is true.

Mr. COLE. That is left to the company?

Mr. AUBERT. That is left to the company.

Mr. COLE. All right.

Mr. AUBERT. Is there still some doubt in your mind, Mr. Cole, as to how that operates?

Mr. COLE. I think not.

Mr. AUBERT. Of course, we try to see that all these allocations are made to the wells. Say they have one lease with 10 wells on it and they get a total allotment of 1,000 barrels a day for that lease, now, they might produce 7 of those wells. Of course, they would try to be fair and not produce all of the oil against their neighbor. The other fellow would open his wells up and they would get in sort of a mix-up there, so they would try to do their producing from wells as economically as they can, and we see no reason for forcing a man to produce all his wells when it would be more economical to him to only produce certain wells. It may be that some of those wells would have a higher gas-oil ratio and the producer might think it would not be well to produce from the high gas-oil ratio wells, and say he would rather produce from the low gas-oil-ratio wells.

Does that answer your question?

Mr. COLE. I think so.

Mr. Pemberton.

STATEMENT OF J. R. PEMBERTON, OIL UMPIRE

Mr. PEMBERTON. Mr. Cole and committee, I wave my hands better standing up. I am the same John R. Pemberton who appeared and qualified himself before your committee in 1934, as found in page 2708 in the early transcript. The first programmed curtailment in California was instigated by the large purchasing companies, who saw the need for curtailment because they were swamped with oil. The independent producers were loath to place the allocation of the amount of oil which should be produced to anyone connected with the purchasing companies, and the independent producers themselves chose to place that duty in the hands of one man to be known as an oil umpire.

Mr. COLE. Mr. Pemberton, have you copies of your prepared statement so we might follow you?

Mr. PEMBERTON. No, I have not. I had quite a number, but they were taken away from me. Thus originally the term "oil umpire" was applied to one who was clothed with a great deal of discretionary authority and who actually had charge of distribution of allotments to the producers in the State. The many transitions which our programmed curtailment in California has undergone, as described by Mr. Vander Leek, finally resulted in the elected committee assuming the responsibilities for the allocation of production. The umpire at present is administrative head of the program and his office is the center of curtailment activities.

FUNCTIONS OF THE OIL UMPIRE

In order that the curtailment program be carried out, the oil umpire's office employs 46 persons, consisting of field men who inspect tests for establishment of potentials of oil wells, gather statistical information, and act as contact men disseminating information for the purpose of obtaining full compliance with recommended production quotas on the part of producers; clerks who tabulate daily production data; mapping and drafting department; engineers who study the potentials of oil wells and are familiar with the rate of decline in all of the fields of the State and who are charged with properly listing all of the wells of the State according to ownership, field, and pool; computing department in which computations are made for the issuance of recommended allocation schedules in the application of the formula as set by the central committee of the California oil producers; statistical clerks who compile data at the end of each month; and conventional typing and printing departments. Essentially the function of the umpire's office is first the issuance of allocation schedules pursuant to the resolutions as passed by the central committee, and, second, the gathering of statistics showing the actual production in comparison with the recommended quotas of production. Reports of production are received from producers daily and monthly. Reports from producers include the production, oil in storage at the end of the month, and the amount shipped from the lease. Purchasing companies likewise report to the umpire's office as to the volume of oil removed from each lease in the State.

The only discretionary authority which the umpire has is in establishing potentials of oil wells.

Mr. WOLVERTON. Mr. Pemberton—

Mr. COLE. Mr. Pemberton, some of the gentlemen in the rear of the room cannot hear you, and I suggest that you get "on the string."

Mr. PEMBERTON. Can you hear me now? Is this working?

Mr. WOLVERTON. Maybe it would help if you did not read as rapidly as you have been doing, Mr. Pemberton.

Mr. PEMBERTON. All right. The only discretionary authority which the umpire has is in establishing potentials of oil wells. In this he is guided by uniform rules which have been promulgated by the central committee, and must consider and weigh all the data submitted by the producer, which may be accepted or rejected by the umpire as circumstances require. Great progress has been made during the last few years in correctly establishing potentials of wells from month to month, through various processes developed and utilized by petroleum engineers in the calculation of potentials of wells which seldom, if ever, actually demonstrate by wide-open flow what their true capacities are. Particularly noteworthy in this respect is the recently adopted "depth-pressure method" by which recording instruments placed in the bottom of the oil well record the pressure at the base of the oil sand under various rates of flow and from which the potential of the well can be calculated. The practice has eliminated the open-flow tests which formerly were the cause of a great deal of overproduction.

The umpire at the beginning of each month issues an allocation schedule for each oil field. A copy of this is sent to all producers in each field. There is also mailed a copy of the uniform allocation table in order that the producer may ascertain how his allotment was computed. In addition a full explanation is also given of the manner of derivation of the State quota and the effect on the uniform formula caused by new wells and other factors. Then at the end of the month there is issued a summary of production on which is shown the allotment, the production, and the excess or shortage for every lease in the State. The umpire neither recommends to purchasing companies that they purchase or do not purchase any definite quantity of oil from any producer. In that respect we do not interfere with free trade and the movement of oil.

The umpire's office also issues each month many summary and analytical tabulations concerning producing wells such as number of wells in each potential bracket; number of wells pumped, gas lift and flowing wells and their potential; oil in storage on leases by fields; volume of oil shipped from leases by all purchasing companies, and many other schedules of similar nature.

All such analytical summaries are of course only compilations made from statistics voluntarily furnished the office by producers and could not be compiled at all were it not for this high degree of cooperation.

Among the important statistics gathered and summarized by the oil umpire are those pertaining to amount of water produced with the oil. Such summaries are made semiannually. Inasmuch as it is recognized that the oil fields of California are known as water-drive fields, it is impossible during the lifetime of an oil well to produce oil without a gradual increase of water until finally at the end of the life of the well nothing but water is produced. Statistics show that the increase in percentage of water to the total fluid produced from all of the oil wells in California is 2.58 percent annually; thus in June of

1939, out of the total of 35,350,000 barrels of fluid which were taken from the ground, 18,123,000 barrels was oil, and the percentage of water produced was 48.72. In other words, nearly half of the fluid produced from the ground in California is water.

The water cut is, of course, much higher in fields which are now exclusively pumping fields and lower in the newer flowing fields. The pumping fields are those in which the gas energy has been exhausted or was never present and production occurs due to the driving force of the water surrounding the oil pool. Statistics on this type of field show that for the same month of June 1939, 23,436,300 barrels of fluid were produced, and only 7,897,000 barrels was oil, the percentage of water in this type of field being 66.3 and the annual increase instead of 2.58 percent for the State is 5 percent. The water cut in these pumping fields ranges from as high as 93 percent in the Kern River field, which was discovered in 1899, and from which over 317,000,000 barrels of oil have already been produced; 78 percent in the Mount Poso field, from which 44,000,000 barrels of oil have been produced; 68 percent from the Long Beach field from which 625,000,000 barrels of oil have been extracted, a field discovered in 1921; down to such fields as the Richfield field, discovered in 1919, with an accumulated production of 88,000,000 barrels, and a water cut in June of this year of only 33 percent.

The problem of distribution of the monthly quota for the State in such fashion as not to interfere with the production of oil from exceedingly wet wells was handled by the central committee in the adoption of the minimum well allotment based on depth as part of the uniform formula.

There are scarcely no wet wells in the State for which the allotment is not satisfactory to the producer. The bulk of the curtailment in the State is applied to the new and old flowing wells of high potentials and low water cuts.

Compliance of producers with allotments. Compliance with the recommended quotas resulting in the almost negligible amount of excess has come about through the education of producers. Actually the excess production over and above the quota is caused in part by new wells which are drilled each month.

Mr. Aubert has told you that we have probably 100 new wells each month with a potential ranging around 100,000 barrels a day. The State quota is issued to all of the wells in the State as of the first of the month, and there is no quota left over for wells completed that month. Therefore those wells as they come in are producing and there is no quota for them, and the oil produced from those new wells is not covered in the quota. That accounts in a great part for the 3.2 percent excess as it stands now.

Mr. COLE. At that point, how many wells are in the State?

Mr. PEMBERTON. How many in the State?

Mr. COLE. Yes.

Mr. PEMBERTON. Something short of 19,000.

Mr. COLE. Can we get that figure accurately?

Mr. PEMBERTON. We can get it accurately.

Mr. COLE. I would like to have it from your official records.

Mr. PEMBERTON. Yes, sir; I will get that for you. Some small excess is also caused by slight overproduction on the part of a great number of small producers who find it almost impossible to reduce

their production a barrel or two barrels per day, and those producers feel that an excess of one or two barrels in their wells is of such small consequence that it will be ignored. There are also many producers who overproduce a little one month and underproduce the next month; there are also producers who curtail a great deal but yet not quite to the suggested and scheduled quota. This may come about for a number of reasons and hence a part of the excess production does not come about through intentional disregard of the curtailment program, but solely for failure to comply to the exact degree of curtailment requested.

Compliance with the recommended curtailment under our voluntary plan has come about primarily through education. The producers from the sense of good business practice curtail their production to their recommended quotas. Because of the publicity given all details of the voluntary program, there is no producer in the State who does not receive statistics showing the allotment and production of the other producers. Nothing is secret. All producers have a part in the entire program. All complaints and grievances of any nature whatsoever are given full and complete investigation and every effort is made to obtain from the producer his active cooperation. I am sure there is a greater degree of cooperation among the oil producers in California than among the producers of oil in any other State, not only in scouting, production, spacing of wells, exchange of information both of geological and engineering nature but also discoveries made in new practices of handling of wells and the production of oil. There is no coercion or force of any nature whatsoever to cause any producer to comply with his allotment.

PRODUCTION PRACTICES

Your committee is, I am quite sure, familiar with the fact that in the technique of finding oil, getting it out of the ground, and refining it, enormous progress is constantly being made by the industry. In the field of pure science, bearing upon the behavior of oil and gas in underground reservoirs, great progress has been made. In California in the early days of the industry, wells were permitted to flow at capacity production and blow gas to the air to encourage the sand to come in the well in order that a great cavity might be made at the bottom of the well from which the oil could later be pumped. The operator wanted to get the gas out of the way as soon as possible so that he would have a settled pumping well. Volumes have been written upon the subject of just exactly what happens in a petroleum reservoir when oil and gas is taken from it through bore holes. However, in the application of modern theories to the production of oil and gas from reservoirs, it is impossible to retroactively apply these theories to old fields and it is difficult to apply them to some of the more recent fields in which modern methods were not instituted at the start. In other words, it is too late to apply all the theories and principles we now understand, as remedies to cure a disease which has run its course.

In California, I am happy to say that the most modern theories on the behavior of oil and gas in underground reservoirs are being applied in the drilling, completion of wells and the production of oil and gas in all newly discovered fields. Such things as flow tests of newly

completed wells do not occur. Wells are spaced properly, drilled in and put on production at a rate equal to the recommended allotment, based on a potential established through bottom-hole pressure measurements. There is no blow of gas to the air and there is no physical waste of any nature whatsoever because no excess oil or gas is brought to the surface. In other words, the industry has been the first to develop the theories of energy control and has broadcast the information to the world and producers in California are applying the principles involved to their own oil wells. Ten new fields discovered in the San Joaquin Valley through the application of geophysical methods are being developed along lines above criticism by even an idealist and in spite of enormous potential ability to produce these fields are curtailed precisely to the recommended quotas of production and there is no waste.

While the curtailment program so far discussed applies only to oil, nevertheless the producing industry is keenly interested in curtailing the production of gas to balance utilization. Thus we have the practice of shifting allotments among wells on large leases so that the low gas-oil ratio wells are caused to produce oil and gas during the season of low gas requirements and to higher oil-gas ratio wells in the season of high requirements. It is physically impossible not to waste considerable gas especially from wells which produce small volumes of oil and gas, yet the State as a whole with a production in winter of as much as 38,000,000,000 cubic feet per month and as low as 31,000,000,000 cubic feet per month in summer has an over-all net wastage of about 9 percent.

UNDERGROUND WASTE

I gather from reading H. R. 7372 that one of its principal objectives is the elimination of underground waste or, said in another way, wasteful practices in the production of oil and gas. There have been a great many loose statements made and articles published calling attention to the fact that so-called wasteful practices of producing oil and gas will cause to be left in the ground millions and millions of barrels of oil never to be recovered, and lost permanently to the Nation. In my opinion, such statements are unfounded and untrue.

Mr. PEMBERTON. The statements that I have referred to appear on page 505 of the transcript at the hearing of November in which Mr. McLaughlin stated [reading]:

In the Texas Panhandle oil reservoir the waste of gas led to the permanent loss of from four hundred to five hundred million barrels of oil. In the hurry to produce oil the failure to conserve natural gas as a source of reservoir energy resulted not only in the loss of the natural gas but also in the leaving underground of a large percentage of the total reservoir supply of crude.

Now, let us analyze this subject of underground waste a little bit—

Mr. COLE. What page was that, Mr. Pemberton?

Mr. PEMBERTON. Page 505.

Mr. PEARSON. And you say that you challenge the correctness of the statement?

Mr. PEMBERTON. Yes. Let us analyze this subject of underground waste: Originally an oil pool contained a fixed and definite volume of oil and gas. At any given period in the productive life of a field the amount remaining in the ground is the difference between the original amount and that already produced. No one knows during

the early development period of any oil field how much oil was originally in that pool; but as development proceeds until finally the limits of the field are determined and the characteristics of the wells as they produce are ascertained, it is common practice to make an estimate of the amount of oil remaining to be produced from the field or its so-called reserve, and the total or ultimate production of an oil field is then said to be the past production plus the estimated future production. And mind you, this is only an estimate from available data treated or handled in the way the individual doing the work cares to handle the quantities. Then and only then, will the critic in the handling of these factors or other factors which he injects into the problem, state that if the practices under which the field is being operated are continued, great quantities of oil will be left in the ground forever lost to mankind.

Great advance has been made in knowledge of underground reservoir conditions within the last few years and it is common practice now to have laboratory analyses of cores of oil sands made for the purpose of estimating the amount of recoverable oil per acre-foot of sand of the character contained in the core. There is first determined from the core the porosity of the sand. There is next determined the permeability of the sand, by which is meant the ease with which fluids and gases may pass through the sand and into the well. There is then determined the amount of connate water in the sand, connate water being residual water adhering to the sand in minute quantities in the extremely fine interstices at the point of contact of the individual sand grains. There is next determined what is known as formation volume by which is meant the volume of space occupied in the ground of a barrel of crude oil measured at the surface plus the volume of gas which is absorbed by the barrel of oil. The determination of these factors permits the engineer to calculate exactly how many barrels of oil are in the ground per acre-foot of sand. The percentage of this oil which may be recovered by oil wells would be the recovery factor. This recovery factor is unknown. In any case, the engineer must use some factor in order to advise the company whether to attempt to make a producing well from that sand or to drill further in search of other sands. The estimated recovery factor is seldom more than 50 percent, which of course means that it is conservatively estimated that only 50 percent of the oil known to exist in reserves will be recovered by wells by all known methods. In other words, no matter how stringent Government regulations may be or how strong the will of an operator, it is estimated that an oil well cannot produce more than 50 percent of the oil which it can be shown rests in the sand tapped by the well. Now the question arises as to why such a situation occurs. The reason is that in an oil sand after all normally removable oil is extracted from the sand, there still is a film of oil wetting every surface within the pores including the surface of all the connate water resting in the pores.

This so-called oil of the wetted surfaces accounts for from 20 to 35 percent of the oil that can be calculated to exist in a sand. In addition to the oil which wets the surface of the grains there is oil in minute quantities adhering to the finer pores and which by virtue of its own surface tension and capillarity adheres with greater force than any of the forces which tend to move that oil from its resting place to the well. In my opinion, a great deal of the references to the

vast volume of oil left in the ground never to be recovered and lost forever to the Nation because of wasteful methods of operating oil wells, is in a great part—in fact perhaps all of the calculated quantities that are referred to. Therefore, the industry certainly cannot be criticized for leaving something in the ground which no man has yet devised a way to recover with oil wells and no operator can be stigmatized as using wasteful methods of production because he leaves in the ground residual and unproducable oil.

We will admit therefore that residual oil, perhaps as much as 50 percent of all the original oil in any oil pool, cannot and is not recoverable in the normal operation of an oil well. But even this oil is not lost to the Nation because it is still in the ground. In the same way any oil not recovered by wells over and above the minimum volume of residual oil is also still in the ground. What the statement by critics means is that after all of the existing wells have been plugged because of their production being lower than economic limits that if there is any oil left in the field it will not be produced by those wells.

Now, what happens to this residual or so-called lost oil? The facts are these: That through the physical functions of nature an oil pool originally was formed by purely natural processes wherein oil and water and gas separated themselves each from the other because of specific gravity. If the oil pool be abandoned and any oil left in the ground between wells or in sands caused by water intrusion into a well, all of such oil will again be accumulated into a pool in the same field by the same natural processes of nature which formed the original pool and all of that oil can be and will be captured by other wells drilled into that pool.

Now, the quantity of oil remaining in a pool when existing wells are abandoned, always will be only an estimate and the estimate probably bears some relation to an original calculation about how much oil the pool should have produced from the existing wells. But again in estimating the above, we only have to call attention to the extremely successful results of water flooding in Pennsylvania and elsewhere in the East, in Oklahoma and in Texas in the Mid-Continent, wherein natural processes are aided and stimulated and hastened by the artificial introduction of water into the perimeter of an oil field and the residual oil is collected and forced to other wells from which it is produced. Such operations have been, when controlled by a capable engineer, extremely successful and, mind you, they are successful at current prices so that the bugbear of inability to recover residual oil in a field until high prices exist is not true.

Mr. COLE. Mr. Pemberton, will you suspend for a moment?

Mr. PEMBERTON. Yes, sir.

(Off the record discussion.)

Mr. COLE. All right, Mr. Pemberton, you may proceed.

Mr. PEMBERTON. All right. During the intermission my assistant has handed me the answer to the question of what we call shut-in wells. The last count on this we have is as of October 31, when we had 14,621 wells to which allotments were issued, producing wells capable of producing and to which allotments were issued, and of those 4,643 did not produce during the month. Those would be the shut-in wells.

Mr. COLE. Then the 18,000 figure, where does that come from? I understood the total number of wells was over 18,000.

Mr. PEMBERTON. Excuse me. You wrote 14. It should be 18,621 wells. You wrote 14.

Mr. COLE. And how many were not producing?

Mr. PEMBERTON. And 4,643 were not producing.

Mr. COLE. Give those figures to Mr. Aubert. As against 800 which he first stated then changed to 2,000; that is a big difference.

Mr. AUBERT. I was undoubtedly in error.

Mr. COLE. Considerably. That tallies with some figures I have.

Mr. PEMBERTON. Yes. I had just stated that the recovery of residual oil is being practiced today at current prices so that the bugbear of inability to recover residual oil in a field until high prices exist is not true.

Now one who will take issue with my line of thought might say, "I cannot disagree with you in principle but for practical purposes, I do consider in your theory the unknown element is the element of time, and while it may be true that natural forces of nature will re-assemble and recollect residual oil into an oil pool that the time which nature will need for this places the period of recovery far into the future." To that I answer that we have ample evidence in California at least of the extremely rapid rate of encroachment of edge water and it is my opinion that once all existing wells are abandoned that edge water will re-form the oil pool very rapidly. One must remember that the collecting processes of nature are interfered with in the normal pool near the end of its life by the extraction of extraordinary quantities of water with the oil and that immediately the extraction of water is stopped from a field that the reaccumulation of the oil into a pool will certainly be hastened and accelerated tremendously. Take a field such as Kern River, one of the oldest we have in California. This field produced in a typical month, June 1939, 81,480 barrels of oil and 877,355 barrels of water, the total amount of fluid including the oil being 958,835 barrels. Obviously, if production should cease from all the wells in that field the cumulative monthly water drive effect would be of that magnitude and as soon as the edge water intrusion built up to a static or equilibrium pressure, all of the oil remaining in the field, including the residual oil, would be found collected at the highest structural part of that field. Wells in that field produce on an average of about $2\frac{1}{2}$ barrels per day and very few as much as 10 barrels per day. The percentage of water produced with the oil in June of 1939 was 92.87 percent and this percentage has been very constant for some time.

Of course, if even that small quantity of oil is produced, eventually there will be less and less oil and the wells will have to be abandoned for economic reasons alone. When that time comes I am confident that in a very short time, certainly within a period of 20 years, the accumulation of all of the residual oil will have taken place and there will be a very good oil pool at the highest point of that structure. One of the strongest reasons which I can cite to prove my contention arises from the fact that in the past, several times certain operators have for economic reasons ceased to produce oil from tracts of land embracing as much as 640 acres, and on each such occasion the adjoining properties immediately, or very shortly thereafter, experienced a decided increase in production of both oil and water from their own property. This would tend to bear out the contention that were all of the properties in the field shut down with the exception of the property on the

highest structural location, that the production of oil and water from that property would soon amount to a figure practically equivalent to the current production of the entire field. The contention that there is such a thing as underground waste caused by wasteful practices of operating oil wells, is purely theory. The contention would better be referred to as failure on the part of an operator to take advantage of all opportunities which nature presents to him in not getting as much oil from his well as someone else recovers from their well. In other words, so-called wasteful practices are upon careful analysis purely comparative with some other operation. Let us analyze that a moment: In a typical oil field in California, there may be a zone of 500 feet in thickness within which oil is found and within which no water is found.

Some operators produce from the entire 500 feet and it is a general practice in the early period of development of an oil field that operators take in, as they say, meaning expose for production purposes to the well, an entire 500 feet of petroliferous zone. Later and more careful studies of the zone by methods of either coring and examination of core, electrical logging, formation tests or other devices develop the fact that the 500-foot zone is not homogenous and that there are great variations within the zone with respect to porosity, permeability and actual oil content. As a result, many well will be completed within that field wherein the operator does not take in the entire 500 feet but takes in a portion of it. Now the ultimate production of each of all the wells in the oil field, will not be and never has been the same. Therefore, and solely because of this fact, there has arisen the theory that some operators must perforce have indulged in wasteful practices because their wells did not produce as much oil as other wells in that area. I challenge any engineer to compute how much any of such operators, who fail to get as much oil as some other operator, have left in the ground due to this so-called wasteful practice. In fact all statements relative to wasteful practices are intangible and are not subject even to approximate calculations for the simple reason that such calculations are based upon a preliminary estimate which represents opinion and opinion only.

And now I want to call your attention to a statement made by Mr. Miller in the transcript in which he says, on page 306 [reading];

As discussed in the foreword part of this report, the concepts of reservoir behavior are in a formative stage, and much is to be learned regarding all the factors constituting efficient use of the natural forces derived from the energy in the system. It has been shown that underground physical waste of oil and gas is difficult—and sometimes impossible—to determine until after the damage has been done. Evaluations of so-called energy waste are far more complex. Accordingly, the cited examples are indicative only of what engineers and others are trying to find out concerning better control of reservoir behavior. It would be impossible, with the present state of knowledge, to tabulate the fields that are being operated contrary to the best use of the reservoir energy. Such a list likely would include every oil field yet discovered.

In other words, the statement is made that not a single oil field in the United States has ever been operated efficiently. That is, perfect.

Mr. COLE. What page was that?

Mr. PEMBERTON. Three hundred and six. In other words, the criticism is made that no operator nor any field had ever been operated according to these theoretical concepts of the correct treatment of reservoir energy. While not specifically comparable the whole thing

to me is a great deal like the situation in which a farmer would find himself should he buy 10 mules for the work that they could deliver. He estimates that each mule would deliver so many foot-pounds of work during their useful lives. Nine of the mules performed up to his expectations but one of them developed into a puny, sick, feeble mule of bad disposition and he got only one-half as much work out of that mule before it died as he did from each of the other 9. Did that farmer waste anything; did the mule waste anything; was anything lost to the Nation because the mule did not live up to expectations? At the same time perhaps another farmer would have guessed originally that in buying 10 mules, at least 1 might turn out to be unsatisfactory. Therefore, even if there were waste or a wasteful practice, who is to be the judge? The facts are of course that there was no waste of any kind.

Frankly, gentlemen, the matter of placing into the hands of a Federal authority the question of determining whether an operator's practice is wasteful, when the whole question is so ambiguous, intangible, and not subject to definitely known (and by known I mean positively known) factors, is something which I believe the entire oil industry in California cannot agree with.

RESERVES

There is another point which I beg leave to discuss, that is the question of reserves. I can say that California has as of January 1, 1940, an estimated future reserve from existing wells and those yet to be drilled on locations thought certain to be productive to be in the neighborhood of 3,160,000,000 barrels of oil. Other engineers may calculate a different figure, but it will not differ greatly from such a figure. The outstanding fact is that this estimate is based upon the idea of the amount of oil that will be produced under known existing methods of production and at current prices. If, when oil gets scarcer the price of oil should double, the probabilities are that the reserve would double. This is for the reason that several methods of recovering residual oil can be put into operation, such as repressuring, water-flooding, drilling for small production, and even mining for oil such as the Germans did so successfully in Alsace-Lorraine during the World War. If the price of oil should be trebled, I believe the future production would be trebled. Certainly in a State such as Pennsylvania, were the price of crude oil to be \$5 a barrel and existing costs of operation remain the same as today, the production from the State of Pennsylvania then would unquestionably bear the same relationship as would \$5 bear to the current price of oil. Thus the reserves of the Nation as testified before your committee as being from 17 billion to 20 billion barrels of oil might be really double or treble that amount from known fields alone, were the price to be double or treble what it is now.

The eventuality of higher prices for oil is inevitable as we approach the time far in the future when oil will be actually scarce and it is of course the desire of the Government to postpone the period of higher prices for oil as long as possible by seeing to it that the existing wells produce their maximum and the residual oil left in the pool for production under other conditions would be as small as possible.

On this score, who can be more interested in that very matter than industry itself. If you or I owned some oil wells, we certainly would do everything known to science to cause those wells to produce the maximum amount of oil before they were abandoned. And there is no stimulus possible of application even by the Federal Government that could cause you or me to produce more oil from our wells than we really were able to produce simply because the wells themselves would mean more to us individually than to the Nation as a whole and we would get the oil if it were possibly obtainable.

SUMMARY

As oil umpire, I can say that California has in effect the fairest, most equitable and unanimously approved form of curtailment procedure ever in effect. I can also say that the degree of compliance with recommended quotas of production is closer to the ideal than at any time previous in the history of curtailment in California and furthermore, I can say that the most modern methods of petroleum engineering, involving the newest theories of behavior of hydrocarbon substances are being applied widely and wherever possible. I also can say that this voluntary program works more smoothly and with less friction than ever before. I also can say that the operators in California are keenly aware of the folly of intentional waste and that no unreasonable surface waste does occur. And finally I say that there is no such thing as underground waste because any oil left in the ground by normal operating practices will be recovered by other operations.

Thank you.

Mr. COLE. Mr. Pemberton, do you feel that all the law on this subject, as far as the State of California is concerned, is now on the books, and if not, what additional law, do you advocate?

Mr. PEMBERTON. I see no need for any law at all other than the laws that we have.

Mr. COLE. Was that your position last year during the consideration of the control measure which was defeated?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. During the consideration of the bill in the legislature?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. Did you endorse the Atkinson bill at any time individually?

Mr. PEMBERTON. No, sir.

Mr. COLE. Your association never took a stand in the matter one way or the other?

Mr. PEMBERTON. They took no stand other than a neutral one, and I likewise.

Mr. COLE. And you individually never expressed your views as to the need of such a law?

Mr. PEMBERTON. Correct.

Mr. COLE. Now you do. You say there is no need for such legislation at this time?

Mr. PEMBERTON. That is right.

Mr. COLE. During the hearings of 1934 you advocated Federal control, did you not?

Mr. PEMBERTON. If you are referring to the statement I made, you can see what statement I did make. It was partially that way; yes, sir.

Mr. COLE. Do you favor Federal control legislation at this time?

Mr. PEMBERTON. No, sir.

Mr. COLE. Did you in 1934?

Mr. PEMBERTON. I believe not. I believe I stated before your committee that I felt that the non-oil-producing—that the Government owed it to the non-oil-producing States to see to it that the Government regulated the industry in the producing oil States. I would like to say that—

Mr. COLE. Is that not tantamount to Federal control? If not, what do you mean by that statement?

Mr. PEMBERTON. It would be assumed to be so; yes.

Mr. COLE. That is not your position today?

Mr. PEMBERTON. That is not my position today; no, sir.

Mr. COLE. But it was in 1934?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. In other words, you favored very definitely in 1934 when we were here rigid control by the Federal Government of the production of petroleum in this country?

Mr. PEMBERTON. Yes.

Mr. COLE. What has caused you to change your opinion in such comparatively short time, 4 or 5 years?

Mr. PEMBERTON. In the first place at that time the statement I made was made pursuant to the fact that I was virtually a Federal employee in charge of the regulation and production in California pursuant to the code, and we had a much more difficult situation then than we have now. At that time it was very difficult to control the situation and I as an employee owed it to my job and the work I was doing to back up what I was doing. I will also state that since that time, I and I believe along with several others, have changed their views with respect to their enthusiasm relative to certain policies of the New Deal which were being experimented with at that time.

Mr. COLE. Let me get this perfectly clear—[applause.] It looks like your gang is here. Let me get this perfectly straight now. In 1934 you favored rigid Federal control of the production of petroleum and you attribute that attitude then to a considerable extent because you were a Federal employee.

Mr. PEMBERTON. I believe many of the statements I made were influenced considerably by that fact.

Mr. COLE. Now then today you express just the opposite attitude. Is that because the organization you are with at this time tells you what attitude to take now?

Mr. PEMBERTON. No, sir; it is not.

Mr. COLE. That is, you are not as susceptible to the influence of your employer today as you were in 1934, is that right?

Mr. PEMBERTON. No, sir. I would like to further, Mr. Cole, call your attention to the statement which was made at the time in connection with the formation of the interstate oil compact; also a statement in that same transcript in which you credit me as being a strong booster for Federal control, and in which I pointedly stated I was decidedly in favor of an interstate oil compact, and I am sorry I haven't got that statement here.

Mr. COLE. Do you question your statement of 1934?

Mr. PEMBERTON. Yes.

Mr. COLE. It is right here. I have, maybe for your convenience, underlined some portions of it.

Mr. PEMBERTON (reading):

My opinion, I assure you, is my own, not caused by the contact or comment with any of the producers in California that I work for. It is solely my own personal opinion, and it is this: "That the Federal Government should cause, by whatever means it has at its disposal, to be made an interstate compact and the Federal Government should be the one to allocate to each State its quota of oil. The Federal Government should cause each State to regulate the production within a State or tell them that if they do not do so the Federal Government will have to so regulate production."

Mr. COLE. That is the statement you had reference to a moment ago?

Mr. PEMBERTON. Yes; that is the only statement that was made on that subject. I believe the fervor and enthusiasm which many of us had at that time for the New Deal led us to go a little far afield.

Mr. COLE. Well, have you changed your views as expressed then as to the wisdom of the interstate oil compact?

Mr. PEMBERTON. No, sir; I am strongly in favor of the interstate oil compact.

Mr. COLE. Have you so recommended to the industry of this State and to the government of this State?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. Has the legislature accepted during the life of the compact, since 1935, any recommendations from the compact group that now exists?

Mr. PEMBERTON. I don't know.

Mr. COLE. You keep in pretty close touch with the compact group, do you not?

Mr. PEMBERTON. Yes.

Mr. COLE. Attend many of their meetings?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. Have you ever known of a recommendation to come from the interstate group to this State recommending legislation?

Mr. PEMBERTON. I believe not; I believe that they do not do that, Mr. Cole; I believe that the compact commission does not itself issue any recommendations to any other State. They leave it to individuals to do that. They leave it to the various Governors to try to convince the Governors of various other States to join, and in the case of representatives sent by Governors, they leave it to that representative to carry the message.

Mr. COLE. The compact itself provides just the opposite shall be done, does it not?

Mr. PEMBERTON. I believe it does.

Mr. COLE. Isn't one of the main provisions of the existing compact—as I recall you sat in in the initial deliberations—that the compact group shall do that very thing?

Mr. PEMBERTON. Yes, sir. I want to also say, though——

Mr. COLE. You say they never do it?

Mr. PEMBERTON. I should say this, as an observer I have never been permitted to actually attend a formal session that the actual delegates to the commission hold. They have their own little session and then they have a public hearing which is the one I have been permitted to

attend. And so I do not know of any formal messages or recommendation actually issued by the compact to any of the States who are not members. I do not know of any.

Mr. COLE. Since 1935—1934, when, as I recall you represented, in a semiofficial capacity at least, this State, at Ponca City, at the conference looking to the formation of an interstate oil compact—and if I am not right I wish you would stop me—from that time to the present, California has not seen fit to join the other major oil-producing States of this country in the compact method of handling this problem, rather than to have the Federal Government do it; that is correct, is it not?

Mr. PEMBERTON. Yes; that is correct, sir.

Mr. COLE. Are you willing to venture a prophesy at this time as to whether California will join the compact group in the future, I mean in the immediate future?

Mr. PEMBERTON. My answer to that is the same answer that I always made to the compact commission itself when they asked me that question at each meeting, and that is that I certainly cannot predict what our legislature will do at any time. [Laughter.]

Mr. COLE. But you can predict what the people will do on a referendum, can't you?

Mr. PEMBERTON. No; I cannot even do that, no, sir.

Mr. COLE. Let me have the figures again of the total number of wells in the State used by your office in compiling the formula of production—or rather the allocation formula.

Mr. PEMBERTON. I have the exact figure here, which would have been the effective number of wells for the month of November, 18,621.

Mr. COLE. Yes; and of that number—

Mr. PEMBERTON. Four thousand six hundred and forty-three—

Mr. COLE. Were shut in?

Mr. PEMBERTON. Were shut in.

Mr. COLE. Approximately 25 percent?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. Have you your records with you to show for the month of November, in which these figures were taken, how many wells of the 18,621 the five major producing companies in this State own?

Mr. PEMBERTON. I guess so. Have you that file here?

A VOICE. October 31.

Mr. COLE. October 31?

Mr. PEMBERTON. Yes. Let's see it. There are seven major companies.

Mr. COLE. Yes, there are seven; you are correct. And we will name them in order: The Standard first, the Shell second, Union third, General Petroleum fourth, Tidewater fifth, Richfield sixth, Texas seventh; is that right?

Mr. PEMBERTON. That is correct. The seven major companies total 9,873 wells.

Mr. COLE. Can you give me the break-down you have there for the Standard, first, of the 9,873 wells?

Mr. PEMBERTON. 3,308.

Mr. COLE. 3,308?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. And then take the next company, taking them in order, the Union Oil Co.—no, the next is Shell.

Mr. PEMBERTON. 1,393.

Mr. COLE. And the next is Union Oil.

Mr. PEMBERTON. 1,175.

Mr. COLE. And the next is General Petroleum.

Mr. PEMBERTON. 1,162.

Mr. COLE. The next is Tidewater Associated.

Mr. PEMBERTON. 1,580.

Mr. COLE. And the next is Richfield.

Mr. PEMBERTON. 477.

Mr. COLE. And the last, Texas.

Mr. PEMBERTON. 778.

Mr. COLE. And a total of 9,873?

Mr. PEMBERTON. Yes.

Mr. COLE. Now, just at random—let us take the largest company, Standard, with 3,308 wells the company owned, according to your records, and participate to this extent in the application of this formula you use, how many of the total of 3,308 actually produce?

Mr. PEMBERTON. 1,955.

Mr. COLE. 1,955. If you have such figures also available as to the other companies, I would like to have that.

Mr. PEMBERTON. All right. You read the names.

Mr. COLE. All right. That is 1,955, Standard. Shell Oil Co.——

Mr. PEMBERTON. 957.

Mr. COLE. The Union Oil?

Mr. PEMBERTON. 829.

Mr. COLE. The next is General Petroleum.

Mr. PEMBERTON. 781.

Mr. COLE. The next is Tidewater Associated.

Mr. PEMBERTON. 856.

Mr. COLE. Richfield?

Mr. PEMBERTON. 366.

Mr. COLE. And Texas?

Mr. PEMBERTON. 637.

Mr. COLE. How many oil fields are there in California?

Mr. PEMBERTON. 115.

Mr. COLE. In how many of the 115 does the Standard Oil Co. own wells?

Mr. PEMBERTON. 36.

Mr. COLE. Do you have, Mr. Pemberton, a break-down of the number of wells each company of the total you have given me owns in the various fields?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. By fields?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. And then side by side with that the number of transfers of production which took place within the company allotment such as Mr. Aubert says is permitted from one field to the other? What I am getting at is how much high-cost production was transferred where they got a very obvious benefit out of it.

Mr. PEMBERTON. We issue each month a summary of the production for the whole State in which such statistics as you refer to are published, and a break-down of that type is made for the major companies and about twenty other companies of large size, and you can judge for yourself what that amount is. It is very difficult—the practice is this: The companies owning production in many fields,

we will say, are offset by a non-curtailing independent operator, causing the company to balance production on their side of the line, and will find themselves overproducing in that field. The large company will then shut in production in any field in which they may do so by virtue of their fee property to balance that production. So it is difficult to ear-mark what is shut in and what is producing, and say that they have transferred so much high-cost production to a low-cost production field. It would be easy to go over the list and add up the volume of high-cost production that was underproduced, and the volume of low-cost production that was overproduced.

Mr. COLE. Mr. Pemberton, to conserve time, you know what my question involves, and if you want to file some of the exhibits before you it is all right to do so, and comment upon them in your testimony.

Mr. PEMBERTON. Of course, generally speaking I would say this: that no large oil company owns—I do not believe I can think of very many places where—I do not believe that I can think of any places where any large oil companies own any fees—own any fee property with the possible exception of Kettleman Hills—when any large oil companies own any fee property in low-cost high-value oil with the exception of Kettleman Hills.

Mr. COLE. Well, will you do that?

Mr. PEMBERTON. I can just give you this exhibit, if you would care to have it.

Mr. COLE. I do not want all of it.

Mr. PEMBERTON. Well, you might as well take it all.

Mr. COLE. I only wanted to put such part of it into the record as pertained to the matter we were inquiring about and not have this great mass of figures here in there also, so that I cannot pick out what I have in mind.

Mr. PEMBERTON. Well, beginning on this page you will find the break-down for each company by fields, all the salient statistics.

Mr. KELLY. That shows the number of wells?

Mr. PEMBERTON. You may have that whole volume and just cut that out and discard the rest.

Mr. COLE. That is from page 16 to 29, inclusive, is the part of the paper in which you think I am interested?

Those pages will be inserted in the record at this point (1).

Mr. PEMBERTON. Yes, sir.

Mr. COLE. Let's have a little order, please. Mr. Pemberton, what percentage of the total production in California is consumed within this State?

Mr. PEMBERTON. I don't know. I am laboring under the impression that it is about 60 percent.

Mr. COLE. What becomes of the balance?

Mr. PEMBERTON. The balance is exported to what we call the cowna territory, the five Western States, Washington, Arizona, Nevada, Oregon, and to the Hawaiian Islands, to Australia; all the Pacific business including Japan, Alaska, and British Columbia.

Mr. COLE. Any oil being shipped from California at the present time to Russia?

Mr. PEMBERTON. Yes.

Mr. COLE. How much?

Mr. PEMBERTON. I think that the volume shipped to Russia is very—well, it fluctuates a great deal.

Mr. COLE. What type of oil is shipped from California to Russia?

Mr. PEMBERTON. I believe principally aviation gasoline.

Mr. COLE. Aviation gasoline?

Mr. PEMBERTON. I believe so.

Mr. COLE. Is that of recent origin?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. That is, since the war?

Mr. PEMBERTON. No; I believe we have been shipping aviation gasoline in fairly large quantities for several years there.

Mr. COLE. Is that going out of this harbor, Los Angeles?

Mr. PEMBERTON. Well, either here or San Francisco, yes.

Mr. COLE. I mean is most of it from here?

Mr. PEMBERTON. I don't know whether most of it is or not.

Mr. COLE. Can you give me an idea of what percentage of the total oil produced in the State of the type Russia is getting is exported to Russia?

Mr. PEMBERTON. No, sir, I cannot. I believe it is a very small percent, though. They certainly do not take—I believe Russia at no time has taken as much as an average of one tanker a month. We will say 60,000 barrels through the year, and I doubt if they have taken that much through the year.

Mr. COLE. How much is being shipped to Japan at the present time?

Mr. PEMBERTON. I believe the Japanese business amounts to 77,000 barrels a day during the past year.

Mr. COLE. Yes; but that has jumped considerably in the last month, has it not?

Mr. PEMBERTON. I believe so. The shipments by month are controlled by the number of tankers available. It takes a long time for a tanker to go clear across and come back, and sometimes they pile up, and we get a lot of tankers one month and very few the next month.

Mr. COLE. Is there a tanker a day out here from Japan?

Mr. PEMBERTON. Oh, yes.

Mr. COLE. At least that?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. And the shipments to Japan for the last month increased at least 50 percent, did they?

Mr. PEMBERTON. I believe so; approximately two tankers a day.

Mr. COLE. Making over 110,000 barrels a day exported to Japan?

Mr. PEMBERTON. Yes.

Mr. COLE. Do you approve of exports of California oil to that extent to Russia and Japan?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. We will permit you to give your reasons the same as other witnesses have, if you care to.

Mr. PEMBERTON. I will say first that in spite of the fact that there is some desire on the part of certain persons in the Federal Government that that practice be discontinued, nevertheless the Government seems reluctant to order it, such an order being tantamount to declaring war on Japan, and it is not proper for the State legislature to do it, and I believe the individual producers feel that the Japanese business is just as much good business as is selling some oil to British Columbia.

Mr. PEARSON. Well, California is a part of the United States and of the Federal Government.

Mr. PEMBERTON: Surely.

Mr. PEARSON. Well, why do you refer to the Federal Government as though it was a thing situated at Washington only?

Mr. PEMBERTON. They have a trade agreement with Japan which has been—which is subject to cancelation, and I believe that it would be the function of the Federal Government to do that. I believe that if the producers of oil in California should, amongst themselves, voluntarily decide, "We won't sell any oil to Japan," it would be considered by Japan to be some kind of a political insult, or a blow or slap in the face, and if such consequences result, it is more properly the function of the Government to cause that than anybody else. I believe the feeling among all the producers is that they do not need to decide not to sell to Japan.

Mr. PEARSON. Excuse me for interrupting.

Mr. COLE. That is all right.

Mr. COLE. Mr. Pemberton, you dispute the fact that underground waste exists in any of the fields in California?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. I have before me a report, an extract from a report written in 1937 by a petroleum engineer employed by the Kettleman North Dome Association referred to as Kenda. Are you familiar with that association?

Mr. PEMBERTON. Yes.

Mr. COLE. In which they state the decline in pressure caused by excess gas production seriously affects the potential production and has reached the point where it is highly desirable to formulate a production plan by which the rate of pressure decline could be arrested and the pressure in the Temblor zones equalized. Do you agree with that finding?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. Well, does that contradict your statement that waste exists in that field?

Mr. PEMBERTON. It does not refer to such a thing as waste at all. That statement refers to the desirability of the operators taking advantage of their opportunities there in order that they may more efficiently, at a lower cost recover the maximum amount of oil from those existing wells. In other words, I claim this so-called underground waste is really, that the statement really refers to the failure on the part of the operator to take advantage of opportunities presented by nature, and his failure to do so does not constitute waste. It is analogous to the situation of an automobile. A gallon of gasoline has a certain definite amount of energy contained in it. We buy it for that energy, the work it will do. A trick driver representing any automobile manufacturer can take that automobile and drive it perhaps 25 miles on a gallon of gasoline, but nobody does it. We get 15 miles per gallon because we want to go fast. We don't want to go at the most efficient rate to go on a gallon, we want to get there and get our business over with. Can it be said that man is wasting energy? He is not wasting it in the sense he didn't get something for it. He has simply failed to take advantage of the maximum amount of work in transportation that was possible because of the existence inherent in man to want to get there fast.

Mr. COLE. How about the West Montebello field? Is gas being blown in the field there?

Mr. PEMBERTON. Yes.

Mr. COLE. Is that waste?

Mr. PEMBERTON. Yes; that is waste to the air.

Mr. COLE. Is that underground waste?

Mr. PEMBERTON. No; sir.

Mr. COLE. Why not?

Mr. PEMBERTON. Well, because it is not in the ground. When you bring it to the air, blow it to the air, that is waste to the air, it would not be underground.

Mr. COLE. It is wasting of underground pressure, is it not?

Mr. PEMBERTON. Well, you cannot produce oil without a rapidly diminishing pressure with the extraction of your oil and gas. Pressure decline does not indicate waste.

Mr. COLE. Many claim it could, do they not?

Mr. PEMBERTON. No; I do not see how it could.

Mr. COLE. Then you do not agree that in the West Montebello field, the blowing of gas to the air is a dissipation of the reservoir energy and therefore underground waste, as I have always understood the term to be defined?

Mr. PEMBERTON. Well, I would say that if the gas is blown into the air and wasted into the air, that they do also waste the underground energy in that respect. If they utilized all the gas they would not have wasted all the underground energy, because that energy is being put to use for work, it is lifting oil to the surface of the ground and bringing gasoline with it, all of which is extracted at the casing head plant. We have a speaker on that field who will devote his entire remarks to that field.

Mr. COLE. Well, the blowing of gas to the air in the West Montebello field which you defend——

Mr. PEMBERTON. I did not defend it.

Mr. COLE. You claim it is not waste and I do. It was the subject of litigation, was it not?

Mr. PEMBERTON. They are wasting it; yes. It is blown to the air.

Mr. COLE. Do you have a table of the last 6 months' figures before you showing as to the West Montebello field the oil and gas production? If you have, I will check it with one before me and put it in at this point.

Mr. PEMBERTON. I have a table of the gas production.

Mr. COLE. I have both. If we had some way to check that, showing that from January to June the percentage of gas wasted was from 31 percent in January to 61 percent in May and 52 percent in June.

Mr. PEMBERTON. Those figures are probably correct.

Mr. COLE. That was the 61-percent figure we were discussing here yesterday, I think.

Mr. PEMBERTON. I assume that they are approximately correct. Mr. Garrison will give you the exact figures later.

Mr. COLE. Mr. Garrison?

Mr. PEMBERTON. Mr. Garrison will have the exact figures on that Montebello field.

Mr. COLE. I think that covers it all, Mr. Pemberton. That is all I have.

Mr. PEMBERTON. Is anybody going to ask me about price?

Mr. COLE. Yes; you wanted to know something about price. I think Mr. Wolverton will accommodate you.

Mr. CROSSER. What virtue do you claim for voluntary control as distinguished from governmental control?

Mr. PEMBERTON. I believe that it works better for us. The results of our production right now since we have adopted the uniform formula is better than any of the other States, better than any of the other States can show with respect to the industry as a whole. The voluntary curtailment is more elastic than is the rigidly and legally enforced control, and it is adaptable to changing conditions and more than anything else the operators like it. The operators in California have been for 10 years accustomed to voluntary control of their business, and they have done a very good job of it; they are now doing a nearly perfect job of it. There is no evidence of any commotion or confusion of any shape or form within the industry itself. I take it that a vast industry such as the petroleum industry with all of its ramifications, and with all of the stockholders and all of the companies that are all interested in it, and they are all interested in the stabilizing of their business, and under this voluntary form of curtailment such as we have here, if it works such as it is working right now, I believe that it is much better than the law; and if it does not work then the law is necessary.

Mr. CROSSER. Why do you think that happens? Why do you think it is better? What characteristic of human nature makes you think so?

Mr. PEMBERTON. Makes our present curtailment better?

Mr. CROSSER. Yes.

Mr. PEMBERTON. Just because they have got good sense, the good business sense to conduct their business in such fashion as they know will keep it stabilized. We have had 10 years of education on this subject here, and there is no producer of oil in California at this time that is not aware of the terrible things that will happen to the industry when the industry is not stabilized, and when production gets out of control. When these things happen we all know it is very bad. They have just got the good sense not to wreck themselves.

Mr. CROSSER. You think that they do it because they want to improve their business, or do they do it to avoid governmental interference?

Mr. PEMBERTON. No, they do not want to do it for either reason; they want to do it to keep their business stabilized at all times. There is no hope of improving their business. They hope to keep it as it is and just not lose what they have. When a man makes his investment he puts the money in the ground, and he wants to make a profit on the money that he has spent, and when he can see that his production is going to be strung out for a certain number of years and the income is probably going to be so and so, he is very content to keep it that way.

Mr. KELLY. Mr. Pemberton, what is the term of office of the oil umpire of California?

Mr. PEMBERTON. He is entirely dependent upon the good will of the operators. There is no tenure of office. I have been umpire for 7 years, but I could be fired this afternoon.

Mr. KELLY. You are appointed by the central committee yourself?

Mr. PEMBERTON. Yes, sir.

Mr. KELLY. Who comprises your central committee?

Mr. PEMBERTON. They comprise 28 chairmen of 28 elected committees in 28 fields or districts; so the central committee is as true a representation of the oil producers as is Congress a representative body of the people of the United States.

Mr. WOLVERTON. Did I understand you to say, Mr. Pemberton, in answer to Mr. Kelly's question that you could be fired this afternoon?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. Well, I assure you I will not ask you any questions with an intention to get such a result.

Mr. PEMBERTON. Thank you.

Mr. WOLVERTON. Of course that leaves the responsibility of this not to me but to any answers that would cause that result, answers given by you.

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. When witnesses come before this committee to give us the benefit of their views on the subject before us, the committee gives them careful attention and consideration, because it is our desire to get all the information that is possible in order to recommend to Congress what should be the policy of the Federal Government toward oil production. It is very disturbing to me, as one member of the committee, however, to see an individual come before us who, at one time, with all sincerity, gives us the benefit of his opinion and advice, and then comes, at a later period, and says, "I was all wrong." And particularly disturbing is the thought that the previous testimony was given under circumstances that did not reflect the real opinion of the individual but was influenced by the conditions under which he was employed.

Was I correct in taking from your answers to Mr. Cole, when he directed your attention to the testimony that you had given in 1934, that the opinion you then expressed was due to the circumstances of your employment at that time?

Mr. PEMBERTON. I believe I was greatly influenced by the circumstances; yes.

Mr. WOLVERTON. In order to do yourself justice and at the same time in order that this committee may properly evaluate your testimony then and now, will you just give in a little more detail your reasons in saying your opinion was in a measure influenced by the conditions of your employment at that time?

Mr. PEMBERTON. Yes, sir; at that time we were endeavoring to do exactly what we are now, that is, we were endeavoring to keep the industry stabilized. We were operating under the Code of Fair Competition in the Oil Industry, theoretically a law which was presumably to be enforced, but it was not being enforced. There were chisellers of all kinds and descriptions that were violating all of the orders issued by the Petroleum Administrator.

Mr. WOLVERTON. Mr. Pemberton, I am not asking for information at this moment with reference to what the conditions were at that time, but what influenced you in your opinion at that time to express an opinion that apparently was different from what you thought should have been?

Mr. PEMBERTON. Well, I was endeavoring to enforce the curtailment and I needed help; that was my job. We were—I desired to call your attention to the failures. Actually your hearings here concerned mostly the workings of the N. R. A. Code, and I wanted to

see that thing work because it was the only thing we had to hang our hats on.

Mr. WOLVERTON. Did the opinions which you expressed to this committee in those hearings 5 years ago represent your own studied thought and deliberate opinion?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. Then those opinions were your own and not of somebody else?

Mr. PEMBERTON. They were absolutely my own then, and I will say that the opinion that I gathered to myself at that time may have been and certainly was influenced by the conditions with which I was surrounded and found myself in, of course.

Mr. WOLVERTON. Was your opinion influenced by those for whom you were employed at that time?

Mr. PEMBERTON. No, sir.

Mr. WOLVERTON. Then I go a wrong impression entirely from your answer to Mr. Cole's question. It left the impression with me that the opinion you then expressed was in a measure due to the circumstances under which you were then employed.

Mr. PEMBERTON. That is what I mean; yes, sir. If my verbiology did not reach your understanding—by that I meant the activities in which I found myself, not in any sense meaning that I said what I said because I was directed to or that I would have gotten in wrong with the central committee at that time. We were all in the same boat, all of us were.

Mr. WOLVERTON. Then the opinion you expressed at that time was your honest, sincere, studied and deliberate opinion?

Mr. PEMBERTON. Yes, sir; and it probably represented also the opinion of a large number of the central committee people at that time too.

Mr. WOLVERTON. At that time you said, among other things, I believe, that I have probably as much information relative to the producing problem of the industry in California as anyone within the State, simply because in the administration of my office I must accumulate and use all statistics available in the industry, and so forth. In other words, you represented yourself to the committee as being probably the most outstanding individual to express an opinion on this subject in the State of California.

Mr. PEMBERTON. That is correct.

Mr. WOLVERTON. Are you still in a position where you can speak as authoritatively as you did at that time?

Mr. PEMBERTON. Concerning those sort of things; yes, sir. The whole subject at that time was the degree of compliance with recommended quotas of production. It was a proration program entirely at that time; it had nothing to do with anything else.

Mr. WOLVERTON. Were you expressing an opinion of your own at that time or the opinion of someone by whom you were employed?

Mr. PEMBERTON. I do not know. I did not ask them.

Mr. WOLVERTON. When you expressed your opinion to this committee then you did not know what the opinion of the producers was by whom you were employed?

Mr. PEMBERTON. I did not—that is, all of them. I knew the opinions of a great many of them.

Mr. WOLVERTON. Did you give us an opinion which you were not certain was substantiated by the industry itself?

Mr. PEMBERTON. No; I gave you my own opinion.

Mr. WOLVERTON. Without regard to what the opinion of the industry was?

Mr. PEMBERTON. That is correct.

Mr. WOLVERTON. Was the opinion of the industry at that time any different than your own opinion?

Mr. PEMBERTON. I believe that the probabilities undoubtedly were that the opinion would have been divided, that there were a great many that were heartily in favor of the code, and others were strongly opposed to it. I never made a canvass of them at all.

Mr. WOLVERTON. In that testimony you made the following statement, and I am now quoting [reading]:

The absence of petroleum regulation you can see allows the bear refiner to operate; allows the individual who believes in the survival of the fittest to operate; allows the individual who would like to get special privileges under the guise of voluntarily cooperating with the fellows to not do his share, and therefore some phase of regulation of production must occur and always will occur. And after listening to all of the addresses that have been given by you gentlemen, yesterday and today, and reading some of the transcript of the hearing, we have found that of course there is a great deal of comment to be made by the parties concerned as to the advisability in knocking the Thomas-Disney bill, the Federal bill, the new one, the interstate compact, and State regulation and voluntary regulation, almost in any manner, shape or form, out. I cannot give you a legal opinion at all, but can give you the opinion I have, because everyone must have some opinion for what it is worth, and my opinion, I assure you, is my own and not caused by the conduct or comment of any of the producers in California that I work for. It is solely my own personal opinion and it is this: that the Federal Government should cause, by whatever means it has at its disposal, to be made an interstate compact, and the Federal Government should be the one to allocate to each State its quota of oil. The Federal Government should cause each State to regulate the production within a State or tell them that if they do not do so the Federal Government will have to so regulate production.

Is that your opinion today?

Mr. PEMBERTON. It is not.

Mr. WOLVERTON. What has changed your opinion?

Mr. PEMBERTON. As I explained before that opinion was caused——

Mr. WOLVERTON. I have not heard you give any explanation. I have heard you give some facetious reply to Mr. Cole's question, but what causes your opinion in a statement such as you made at that time——

Mr. PEMBERTON. You will have to consider that the statement I made at that time was caused by my fervor and enthusiasm over the regulation of this industry which was in quite a jam, and I was interested as I am in whatever work I am doing in seeing that accomplished. To that extent I said the circumstances under which I was living at that time caused me to make that kind of a statement, that since that time I have changed my mind, very much so, because I am not at all convinced that Federal control of an industry such as the oil industry can be accomplished as well as the States doing it themselves.

Mr. WOLVERTON. How much credibility or importance can be attached to the opinion of an individual who sets himself up as being the outstanding spokesman for the oil industry in the State and gives a plain, deliberate expression of opinion as that is and then comes before us today and says in effect—don't pay any attention to what I said 5 years ago. I am all wrong, because I had too much fervor for

the New Deal administration. Is there anything in what I have read of your previous testimony to indicate your opinion was based on your fervor for the New Deal administration or any other political set-up?

Mr. PEMBERTON. There is nothing in the statement; no.

Mr. WOLVERTON. Then you did not state to the committee your own judgment. It was a judgment that was formed by a fervor that led you astray, is that correct.

Mr. PEMBERTON. Very likely; yes.

Mr. WOLVERTON. Can your prejudice lead you astray now?

Mr. PEMBERTON. It may. Maybe 5 years from now I might say I wish I had said something today I haven't said. I conceive no man is bound not to change his opinion about things.

Mr. WOLVERTON. How often do you change your opinion by what has happened, or if I may put it another way, what has happened in the oil industry in particular that causes you to change your opinion as you expressed it to this committee 5 years ago?

Mr. PEMBERTON. Principally because the interstate oil compact which was suggested there has been formed and has been functioning. There have been many States which have passed laws since that time and do a good job in their own State, and we out here are now and have been for the past 7 or 8 months doing a better job than we did at that time under the N. R. A.

Mr. WOLVERTON. You speak in your statement to this committee of the basic condition. If I had the time to read through all the pages of your testimony you would understand the force of what I am saying. The statement to which I directed your attention was your own expression to this committee after having read pages of matter on the conditions, the various conditions that prevailed in the production of oil at that time, and you said:

My opinion, and it is my own personal opinion, is that the Federal Government should cause by whatever means it has at its disposal.

and so forth.

Mr. PEMBERTON. They have done that.

Mr. WOLVERTON. The Federal Government should cause each State to regulate the production within a State, or if they did not do so that the Federal Government will have to so regulate production. Now what has there been that has changed your fervor to such an extent that you would change your opinion on a basic matter like that?

Mr. PEMBERTON. Fundamentally it has been the numerous conditions in the industry itself. Many of the conditions you read from my statement do not exist now. We have different conditions altogether. You talk about the bear refiner there. They are practically extinct in California.

Mr. WOLVERTON. You still believe there should be a quota for each State?

Mr. PEMBERTON. Yes.

Mr. WOLVERTON. Who should fix that quota?

Mr. PEMBERTON. Just as it is now, by the Federal Government.

Mr. WOLVERTON. Should it be done by law that would compel States to accept it, or should it be done in the way it is done when the Government offers their advice, and it is up to the States to follow it?

Mr. PEMBERTON. That is the best way, to expect that degree of cooperation between the States and the Federal Government. I believe the recommendations of the Bureau of Mines are recognized by everybody.

Mr. WOLVERTON. Then you do not believe that the Federal Government should cause each State to set its figures?

Mr. PEMBERTON. I do not now.

Mr. WOLVERTON. What would be your remedy in the event that the State did not accept the figures fixed by the Bureau of Mines for total demand?

Mr. PEMBERTON. When changing conditions occur, they can consider the whole thing again. In other words, if we were going on now, we will say, and the States were following in every way the recommendation of the United States Bureau of Mines, and there was an intense competition between the various States for whatever business there existed in the world, and there was disorder and lack of stabilization not only within one State but between States, then I think that the law at that time would be advisable to, in some way, restrict the production of the States.

Mr. WOLVERTON. You believe in a control whereby supply will have relation to demand?

Mr. PEMBERTON. Yes.

Mr. WOLVERTON. You believe that the Federal Government should give those figures to the different States?

Mr. PEMBERTON. Their recommendation.

Mr. WOLVERTON. Notwithstanding your opinion 5 years ago, you now believe that the States should be permitted to accept or not accept the Bureau of Mines' figures as they see fit?

Mr. PEMBERTON. I believe it would be wrong to pass a law making it mandatory that each State restrict production to a figure sent out by the Bureau in Washington.

Mr. WOLVERTON. You feel that they should do it, don't you?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. And you are doing it in California?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. But you object to anybody telling you that you should do it?

Mr. PEMBERTON. That is right.

Mr. WOLVERTON. In other words, you reserve the right to do it as long as it suits you, and you change when it does not suit you?

Mr. PEMBERTON. That is right.

Mr. WOLVERTON. Now, what is the situation that has caused you to change your opinion with respect to that, because five years ago you did not have that kind of an opinion?

Mr. PEMBERTON. My change of opinion is due entirely to changed conditions. We have such a high degree of cooperation now, not only between the producers of oil in this State, which you cannot help but admit must exist, that we do run the oil business in California in such fashion as we have with no coercion of any kind or power, and it also exists between our State and others; there is no competition between our State and Texas, and right now there is no competition between Texas and Oklahoma and Illinois. The industry, as a whole, is stabilized.

Mr. WOLVERTON. In your opinion expressed 5 years ago you say that the Federal Government should give those figures to the States, and you were so anxious to have Government figures made effective in the several States at that time that you said if the State is not willing to accept it, the Federal Government should have power to enforce it.

Mr. PEMBERTON. That is correct.

Mr. WOLVERTON. Now you say because the States do accept it, therefore there should not be any Federal control. Suppose the situation fails so that some accept and some do not accept?

Mr. PEMBERTON. I don't know what my opinion will be when conditions change.

Mr. WOLVERTON. Well, the principle would be the same; you have not changed in your allegiance to the thought that the Government should fix the figures; you state you accept them; you have not changed in that, have you?

Mr. PEMBERTON. I consider that the United States Bureau of Mines by its own showing has made for years an extremely accurate, dependable forecast by States. The States have the good sense to recognize that; they have been following it, and it is a fine thing and I think it is entirely different. It is a great deal like our voluntary curtailment here, but what it would be were I to be suddenly endowed with some miraculous power to force a producer to produce a certain number of barrels, like out of this uniform formula, he would not like that; he would want to have a hand in that. Mind you, this oil business is not static and constant. It is shifting and changing all the time. Everything changes. We have a new field one day and do not have it the next day, new States are springing up with producing wells, and so forth.

Mr. WOLVERTON. If it is not static, and changing from time to time as you say, then does not that create the necessity for some Federal or State legislation that would make certain and secure this worth-while principle you advocated 5 years ago and which you still believe in, that the Bureau of Mines should give the figures and that the States should accept them?

Mr. PEMBERTON. I do not see any necessity for doing anything until it is necessary. There is no necessity now for anything like that.

Mr. WOLVERTON. But you have not changed in your allegiance to the idea that it is advisable for the Federal Government to give the figures to the several oil-producing States?

Mr. PEMBERTON. Yes, sir; because they cannot do it themselves.

Mr. WOLVERTON. Nor has your opinion changed with respect to the advisability of the State accepting those figures?

Mr. PEMBERTON. I believe that is correct; yes, sir.

Mr. WOLVERTON. But you do object to the State being told by the Federal Government to do what you admit it should do?

Mr. PEMBERTON. Yes, sir; that is correct.

Mr. WOLVERTON. It would seem to me if the principle for which you stand is worth anything at all, then it is worth having the strength that would be given to it by legal enactment of a Federal statute.

Mr. PEMBERTON. I elected today to wear a brown necktie, but I do not want the Federal Government to tell me that I have got to wear a brown necktie today—there is a little bit of difference there.

Mr. WOLVERTON. Well, I will think that out. [Laughter.]

Now, let me read a little further from your opinion expressed at that time (reading):

I have heard a great deal about the treading on States' rights by the Federal Government. It seems to me that the Federal Government treads on the rights of the non-oil-producing States when it does not do all in its power to conserve and regulate the petroleum industry in the oil-producing States for the benefit of all States. I think you have to look at both classes of States.

I was pleased to hear you say that 5 years ago. Are you still of that opinion?

Mr. PEMBERTON. No; I have become a more hardened supporter of States' rights than I was before, and I will tell you why—only because of education. Prior to that time I had at one time made a statement to some of the fellows in a room, we were talking about things, and I said, "What good is a State, anyway? I do not think we should even have a State. We ought to have cities and a Federal Government." I said, "What does the State do for me?"—I was ignorant at that time. [Laughter.]

Mr. WOLVERTON. Then you are not now of the same opinion as when you testified before the committee, with respect to the testimony I have read from the transcript? I do not assume that the incident to which you referred has any direct relationship to your testimony with reference to oil—

Mr. PEMBERTON. Well, it has a great deal.

Mr. WOLVERTON. Do you have still a concern for the non-oil-producing States to the extent that the Federal Government should put forward its best efforts to conserve and regulate the petroleum industry in the oil-producing States for the benefit of all of the States?

Mr. PEMBERTON. No; I do not have that opinion.

Mr. WOLVERTON. So, then, are we in the non-oil-producing States to lose the benefit of your help?

Mr. PEMBERTON. Well, I have not heard anybody squawk from any of the nonproducing States, that they are being gypped, or in any manner prejudiced, or that anything is being put over on those States. And I think that it will be time enough for you to consider the whole subject when there is a squawk from the non-oil-producing States.

Mr. WOLVERTON. Did you hear any squawks at the time you expressed that opinion?

Mr. PEMBERTON. No; I did not.

Mr. WOLVERTON. But you expressed an opinion then in favor of the non-oil-producing States without having heard any squawks from them. Now why have you changed that opinion, if you have not had any squawks?

Mr. PEMBERTON. The statement made at that time was made because of an ignorant conception of what were States' rights. [Laughter.]

Mr. WOLVERTON. In other words, you are now doing the squawking instead of listening to the squawkers?

Mr. PEMBERTON. Perhaps that is right.

Mr. COLE. Gentlemen, we have an engagement with a group for lunch as guests of your chamber of commerce. I assume that we will be gone for an hour and a half or two hours. We will recess at this point until 2 o'clock—and resume with Mr. Pemberton.

(Whereupon an adjournment was taken until 2 p. m. of this day.)

AFTERNOON SESSION

Mr. COLE. All right, gentlemen, the committee will come to order. Mr. Pemberton, will you resume the stand, please.

Mr. PEMBERTON. Why, Mr. Chairman, Mr. L. P. St. Clair is with us.

Mr. COLE. Let us conclude your testimony first.

Mr. PEMBERTON. Oh, excuse me. Very well.

Mr. COLE. Mr. Wolverton.

Mr. WOLVERTON. Was your opinion in 1934 that there should be Federal control in any way based upon the fact that the Federal Government has a considerable interest in oil production lands in the State of California?

Mr. PEMBERTON. I believe that a part of my statement referred to the fact that the United States Government was a considerable royalty owner in the production in the State and therefore was vitally interested in the stabilization of that industry.

Mr. WOLVERTON. Do you think because of their holdings the Federal Government should have some say with respect to allotment?

Mr. PEMBERTON. No; I believe not, other than that exercised now as lessor.

Mr. WOLVERTON. Is the Government a member of your central committee?

Mr. PEMBERTON. No, sir.

Mr. WOLVERTON. Does it have any representative on it?

Mr. PEMBERTON. No, sir.

Mr. WOLVERTON. Is there any individual owner that has as much interest in California oil as the Federal Government?

Mr. PEMBERTON. Yes; I think so.

Mr. WOLVERTON. How would it compare to the Government holdings?

Mr. PEMBERTON. I believe there are many companies in California of which the ownership is largely in the hands of one man, wherein the production of that company's oil is vastly greater than the Government's royalty share.

Mr. WOLVERTON. What is your estimate as to the amount of Federal-owned oil lands in the State of California?

Mr. PEMBERTON. As to acreage, I cannot tell you. I saw some figures the other day which may or may not be correct, probably are reasonably so, to the effect that the potential of the wells now producing from federally owned lands were approximately 30 percent of the potential of the State.

Mr. WOLVERTON. In other words, the Government has an interest in about one-third?

Mr. PEMBERTON. Of the current potential, not the allotment.

Mr. WOLVERTON. Do you think that the holding of a one-third interest in the potential is sufficient to give the Federal Government a right to either representation on the central committee or the right by legislation or otherwise to have some say as to what should be the plan of recovery in California—I am speaking of recovery of oil?

Mr. PEMBERTON. It would not, based upon the make-up of the central committee. The central committee consists exclusively of producers and not landowners. I believe, however, that the central committee would welcome the representation of the Government on its committee as a landowner and an interested party to the production of oil.

Mr. WOLVERTON. Has such an invitation ever been extended?

Mr. PEMBERTON. I believe not.

Mr. WOLVERTON. Has there been a reason why you have not extended such an invitation?

Mr. PEMBERTON. I believe not. Representatives of the Government are invited to attend the meetings, and have frequently done so.

Mr. WOLVERTON. I would like to bring to your attention a portion of your testimony as given 5 years ago, reading from the record [reading]:

Mr. PEMBERTON. I want to make a statement about the relationship of the Federal Government and the oil reserves in California to the industry in California.

Mr. COLE. All right.

Mr. PEMBERTON. The oil being produced in California apparently is produced for the greater part from Federal-owned lands. About 9 percent of the production comes from the land owned by the Federal Government. It is estimated and I agree with the estimate, that one-third of the oil within the State of California is from federally owned oil lands—one-third. The royalty interests therefor to the Federal Government and the royalty owned by it is about 4,700 barrels per day. I therefore feel that the Federal Government has more interest in the oil industry than any other party from the selfish standpoint of receiving income.

Has your opinion changed in that respect?

Mr. PEMBERTON. Yes, sir. It would have to. Conditions today are not like that. Certainly the known reserves of oil in California now have not been increased at all, in my opinion on any Federal lands, whereas the bulk of all of the new discoveries have been exclusively on private land.

Mr. WOLVERTON. To what extent has that changed the ratio or the interest of the Government?

Mr. PEMBERTON. Well, it has lessened it.

Mr. WOLVERTON. To what extent?

Mr. PEMBERTON. I cannot say offhand just what the relative figures would be. I would estimate it, probably at one-half of what it was at that time, from the point of view of production and reserves.

Mr. WOLVERTON. Then your opinion has changed because of the reduction in the ratio?

Mr. PEMBERTON. That would be one of the reasons affecting my opinion.

Mr. WOLVERTON. What other reasons do you have?

Mr. PEMBERTON. The principal reason being that by no stretch of imagination could a more fair system of allocation of production be instituted in the State under the voluntary program, and the Government is adequately protected now and needs no advice in the allocation of production, nor have I heard any opposition from it.

Mr. WOLVERTON. The opinion that you expressed in 1934 does not seem to have been based on the fact that there was adequate or inadequate control of allotment. It seems to have been based entirely upon the interest of the Government. Now, was your opinion in 1934 in any way based on the element that you have just mentioned?

Mr. PEMBERTON. No, sir.

Mr. WOLVERTON. And it was entirely upon the basis of the large interests that the Federal Government had at that time?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. Do you judge from the standpoint of percentage or take into consideration the national interest from the standpoint of national defense or any other consideration of national interest?

Mr. PEMBERTON. At that time I took into consideration only the percentage interest. I was not thinking of the national-defense idea.

Mr. WOLVERTON. Speaking of it from the present and, having in mind the conditions that prevail throughout the world, do you think the national interest with respect to national defense should be a part of your consideration before expressing an opinion?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. To what extent?

Mr. PEMBERTON. My opinion now is that the national interest from the point of view of national defense is adequately cared for by the manner in which the industry conducts itself. There can be no criticism of the manner of production of oil, in my opinion. No aid from the Government could improve the situation a bit, not a bit.

Mr. WOLVERTON. Is it your opinion then that national interest should be dependent on the good faith of the central committee without any protection by legislation?

Mr. PEMBERTON. Well, Mr. Wolverton, certainly the Government has all the legal protection that can possibly exist. It is the owner of its own lands. It can certainly control production from its own lands. As a matter of fact there is some little disagreement between industry in California and I believe the Secretary of the Interior Mr. Ickes, who is now suing some operators for some \$6,000,000 because he asserts the price of oil is too low in California, it should be a higher price here but he has not protested against anything else, however.

Mr. WOLVERTON. Does the Government participate in the action of the central committee to the extent of accepting the allotment or does it run on its own allotment?

Mr. PEMBERTON. No, sir; the representatives of the Government have not formally, to my knowledge, accepted the manner of allotment now being carried on by the central committee. However, in the past, representatives of the Government in California, watching the production of oil from public lands, have many times in the past pointedly told me that the allotment was not correct on their lands and they tell the operators how much they could produce so that they are watching the situation.

Mr. WOLVERTON. At the present time does the central committee fix an allotment for Federal-owned lands?

Mr. PEMBERTON. It does for the wells on Federal-owned lands; yes, sir.

Mr. WOLVERTON. Does the lessee respect that allotment?

Mr. PEMBERTON. In some cases they do and in some they do not.

Mr. WOLVERTON. What happens when they do not?

Mr. PEMBERTON. Nothing happens.

Mr. WOLVERTON. Doesn't that dislocate your efforts to have supply and demand balance?

Mr. PEMBERTON. No, sir; it does not, because the operator who happens to produce more than his allotment which he might have for wells on Government-owned land reduces his allotment on some other wells elsewhere to make up for it.

Mr. WOLVERTON. Do you think there should be any legislation under which there would be an equitable allotment that would be equally applicable to the Federal-owned land as to the privately owned land?

Mr. PEMBERTON. I see no need of it. As I said this morning, the Government, it seems to me, has the authority to either reduce or increase production from wells on its own land.

Mr. WOLVERTON. Do you know to whom oil is sold that is produced on the Federal-owned lands?

Mr. PEMBERTON. Yes, sir; I have a record in my office of the purchasers of oil from all the wells and the leases in the State. To what extent some of that oil is transferred through the pipe lines for the account of another purchaser, I may not have the information, but aside from that, I am able to tell you who purchases any oil produced from any well in the State.

Mr. WOLVERTON. You casually made a reference to pipe lines, and that casual reference reminds me of my desire to gain some information with respect to the pipe-line situation in California; so if I overlook it, I hope it will remain in your mind that I do wish to ask you questions concerning it.

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. Has the question ever been raised by the Federal Government as to what should be the policy with respect to production of oil from the Federal-owned land in its relationship to national defense?

Mr. PEMBERTON. I cannot answer that very pointedly, other than to say that the United States Navy has taken some interest in that question.

Mr. WOLVERTON. To what extent and in what way?

Mr. PEMBERTON. Well, the first instance would be—I believe at the instance of the Navy the last Congress passed some legislation, a bill calling for the acquisition by the Government of all of the presently producing properties in the Elk Hills, for the purpose of converting them into a naval reserve from which no production would be currently taken. And, second, activity on the part of the Navy in causing to be consummated in the Buena Vista Hills, another one of the naval reserves, a plan for the future development of reserves in that field. All of which is designed for the purpose of stopping the production of oil from those lands and keeping it for some future use. Except as to the extent of those two instances, I am unaware of any other activity on the part of the Government.

Mr. WOLVERTON. What would be your objection to Federal legislation that would have as its basis a program of oil production wherein national defense would be the underlying thought?

Mr. PEMBERTON. Well, in the first place, oil as it comes from the ground in its crude state is not used by the Government for national defense. It has to be refined to certain very definite specifications, and has to be transported and kept in storage for the disposition of the Government. To the extent that the policy of the Government to future reserves is concerned, it seems to me that the interest in the industry is equally tied in with the interest of the Government, and the industry, in its own way of producing the maximum amount of oil that it can from any and all of its wells, and its own knowledge and technique in handling oil and refining it, and its own knowledge as to the proration of oil, is sufficient to guarantee to the Government adequate protection as long as there is any oil left in the country, and also that the industry has always given the Government first choice and the lowest prices at all times.

Mr. WOLVERTON. I am not asking your opinion from the standpoint of the immediate time, but I am asking if from the standpoint of an uncertain time in the future, whether the reserves would be sufficient

for proper national defense. The answer to that question seems to me to depend somewhat on what your opinion is as to the known reserves. Some have expressed the opinion and, gave it as a fact, that the known reserves would give a supply for 50 years. Mr. Harry Sinclair, if I remember correctly, testified in Los Angeles 5 years ago that in his opinion there was enough oil in reserve to supply our needs for 100 to 500 years. Which estimate is right, I do not know, but certainly the importance of having a proper reserve for national defense depends largely on your opinion with respect to what the known recoverable reserve is at the present time. Now, what is the situation, so far as you know, from that standpoint, that would make Federal legislation either necessary or desirable?

Mr. PEMBERTON. Well in the first place there could be hardly any question about the fact we have over 3,000,000,000 barrels of oil in sight from existing wells or wells being drilled and to be produced under known and presently used methods. I then say that through the function of secondary methods of recovery that at least as much oil can be obtained from the old fields as have been produced, which is 5,000,000,000 barrels of oil which would make 8,000,000,000 barrels of oil. I then believe the Government alone in the Elk Hills, through the fact only a small part of that field has been drilled, certainly as to depth, as there has been no attempt to drill in the Elk Hills, to drill to the deep horizons which are right alongside the Elk Hills and should exist there. The field of the Elk Hills with the potentials and indications in sight, right within sight of us a few miles would make it apparent that the Elk Hills has many, many hundreds of millions of barrels of oil in reserve beneath it never drilled to, and the Buena Vista Hills also. I believe California can give an account into the future of 15,000,000,000 barrels of oil.

Mr. WOLVERTON. Your answer is based upon the known recoverable oil or your estimate of it in the State of California. My question is broader than that. What do you know or what is your opinion, if you have any, as to the present known recoverable oil reserves of the United States?

Mr. PEMBERTON. I have no other knowledge than that which I gain from conversation with other engineers and reading reports and estimates such as have been presented to your committee.

Mr. WOLVERTON. What has your reading shown you to be the present reserve?

Mr. PEMBERTON. In the United States, I believe it is dependent upon whose estimate you read, all of them being over 17,000,000,000 barrels.

Mr. WOLVERTON. At our present rate of use, how long would that last?

Mr. PEMBERTON. Well, you could produce——

Mr. WOLVERTON. Assuming there would be no further discoveries or additional recoveries than would be produced by the present means of production.

Mr. PEMBERTON. Well, in the first place, it cannot be produced at the present rate of production or consumption, because, with no further discoveries, the rate of production will decline. I believe without any other wells being drilled in the United States, there will be wells producing in the United States a hundred years from now, and we in California have many wells that are over 50 years old and

they are still producing, so that the life of these 17,000,000,000 barrels is a long life.

Mr. WOLVERTON. Well, what is the present consumption measured by barrels per year at the present time?

Mr. PEMBERTON. This last year, which was the largest in history, was 2,000,000,000 barrels, rough figures.

Mr. WOLVERTON. 2,000,000,000 barrels?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. And you say your reading has developed the fact that there are now about 17,000,000,000 barrels in reserve?

Mr. PEMBERTON. Yes.

Mr. WOLVERTON. Well, then, it would only last 8 years at our present rate of use, wouldn't it?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. Over a period of years, our use has increased year by year, has it not?

Mr. PEMBERTON. It has.

Mr. WOLVERTON. If that average of increase should continue, then it would be something less than 8 years of known reserve?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. Doesn't that strike you as presenting a situation that well deserves the attention of the Federal Government as it seeks to preserve the national interest, if we look at it only from the standpoint of national defense?

Mr. PEMBERTON. Yes, sir; I believe that the Federal Government may well concern itself with the probability, or, rather, the extent to which our known reserves are apt to carry the country.

Mr. WOLVERTON. With that acknowledgment and the recognition of the importance of it, would it not seem that it would justify legislation of some sort that would guarantee the security of our people by the proper production of so vital a commodity?

Mr. PEMBERTON. No, sir; I see no necessity for it. There has never been any in the past and I see no reason for concern in the future.

Mr. WOLVERTON. Notwithstanding the condition that the world is in today, with the importance of petroleum being emphasized every day, and under your figures with only a known reserve of 8 years or less, you do not think that presents a situation of sufficient importance for the Federal Government to take such action as would make certain and secure our national interests? Do you think that it should be left solely and entirely to the industry itself, working independently in the several States, and, as in this State, with a mere voluntary curtailment?

Mr. PEMBERTON. The things that you refer to are of concern to all of the States, which have laws relating to the production and waste, and so forth. Here in California we have our voluntary program and it is functioning very well; the functioning is good, with as good a record as any other State with a law.

Mr. WOLVERTON. I am not condemning the State, and certainly I am not seeking to create an impression on your mind that I am speaking critically of the State of California. I am asking you to consider from the larger standpoint than the oil-producing States, but beyond that to the national interest, and the security of our people.

MR. PEMBERTON. The prolongation of the production of crude oil from the reserves of the Nation is, of course, the concern of the Nation, and it is equally true of all the States, and equally true of the industry. They are all tied in together.

MR. WOLVERTON. If there is any opinion on the part of our Army and Navy officials with respect to the importance of oil and a proper reserve, would there be any means at the present time of their enforcing that viewpoint in the State of California or any other oil-producing State?

MR. PEMBERTON. I believe not.

MR. WOLVERTON. So the Federal Government, protecting the interests of the whole people, is absolutely dependent upon what would be the attitude of California, and each of the individual oil-producing States?

MR. PEMBERTON. Yes, sir.

MR. WOLVERTON. Assuming their patriotism to be such that they would wish to do this, and certainly no one would deny that fact, yet in order that there might be a proper cooperation or correlation, would it not seem advisable that there should be a central agency, which would be the Federal Government, to determine what is best in the national interests, rather than to leave it in that undetermined state, to the judgment of separate individuals and viewpoints?

MR. PEMBERTON. I believe your point is well taken, and I believe that that is being done by the United States Bureau of Mines, that is quite active in ascertaining a great many things. I believe that cooperation between that body and the regulatory bodies in the States, that in that way a great deal more can be accomplished rather than by a law. I am not holding any thought at all that there should not be cooperation between the Government and the States, but I believe that it is unnecessary to have a law to do it, though.

MR. WOLVERTON. In no other important matter of national defense does the Federal Government depend on the individual States. We have the National Defense Act that reaches out into the several States, and sets up a method that would be immediately usable in the event of national emergency. Why would not some law, then, that would give the Federal Government the same jurisdiction in this important matter, be advisable?

MR. PEMBERTON. Well, Mr. Wolverson, it might be advisable, but at the same time, my observation and experience in the last few years with the boards and commissions and bodies that have been created by the so-called New Deal, leads me to believe that it would be unadvisable to have such a law enacted during the term of the present government.

MR. WOLVERTON. Surely your prejudice against the New Deal, that has been evidenced on more than one occasion today, would not lead you to the conclusion that it would not be patriotic in its endeavor to protect the people of the United States?

MR. PEMBERTON. No; not in the least.

MR. WOLVERTON. Why, then, the fear that you express, that the New Deal would do something that would not be proper?

MR. PEMBERTON. Beyond any doubt, their motives would be sincere, and beyond any doubt their ideals that they would wish to accomplish would be sincere, but their manner of doing it would not be so good.

Mr. WOLVERTON. Well, the manner in which they would do it would depend upon the procedure outlined by Congress in the legislation it passed. Am I to assume from what you have said that there could be no procedure that would have regard for the national interest that would not at the same time destroy the oil industry?

Mr. PEMBERTON. Oh, no; I am not thinking that there is going to be any destruction of the oil industry.

Mr. WOLVERTON. I am seriously trying to find out in this great patriotic desire to protect our people in the case of an emergency, where the use of this vital commodity would play an important part, why you are so fearful that the New Deal, as you term it, would be unfair.

Mr. PEMBERTON. I didn't say it would be unfair. It is my observation and belief that it would probably be much less effective in the objective desires than would be cooperative action without a law.

Mr. WOLVERTON. That is not the way you expressed it. You said you would be fearful for any Federal legislation that would come out of the New Deal. Now, of course, you understand that my position is not one that calls upon me to defend the New Deal in any particular. But I am seeking to ascertain from you why you are so fearful of it in this great matter of patriotism?

Mr. PEMBERTON. I said the wrong word. I should not have said "fearful." Probably the word "concern" would be more to the point.

Mr. WOLVERTON. I got the impression from your answer that you were concerned, if not fearful, that any legislation that would emanate from the New Deal, regardless of the purpose that it sought to serve, would be of such a character that it would be harmful to the oil industry in its endeavor to be helpful to the people of the Nation. You do not mean to condemn the New Deal to that extent, do you?

Mr. PEMBERTON. No, no; my remarks there are, I would say, influenced by a perusal of this H. R. 7372, the motives of which are beyond the question patriotic in principle; however, the way of going about the creation of a commission which has powers to enforce small and incidental and nonconsequential factors, the fact that one of the engineers of the Bureau of Mines stated there was not a single oil field in the United States that that bill would not affect, and also the bill is, in my opinion, founded on ambiguous and hypothetical notions, the fictitious underground waste cannot be valued, and no two men can agree, certainly a man from the industry and a Government representative could not agree, makes this thing so unworkable, so impractical—it is impractical, unworkable, too far-embracing, and it is that type of proposed legislation that makes me look askance at any proposed legislation on the part of the Federal Government to regulate any phase of the petroleum industry.

Mr. WOLVERTON. Well, as I have said, there is nothing that calls upon me to be an upholder of the New Deal, but I confess that I cannot agree with you to the extent of impugning the motives, or, even having the concern, that you have that in a matter of this kind the administration would not seek to do what was necessary and no more than was necessary.

It seems to me that your statement that we have at the present time known reserves of oil for only 8½ years is astounding. It creates in me even more interest in the subject than I had when I started to question you. I was not aware that our reserves were so

nearly depleted or would be in such a short time as you have indicated. Certainly your statement emphasizes the view of the Federal Government that it should have something to do with the extent to which this vital commodity should be produced. Is your concern only because it is the New Deal or are you concerned about any kind of a deal, and any Federal legislation? In other words, can you conceive of a situation where you would not be fearful? I am trying to find out how far your prejudice of the New Deal is the basis of the opinion you expressed or whether you are opposed to the principle that I am advancing or whether it is merely opposition to the New Deal.

(No response.) [Witness reading paper handed to him by Mr. Hogan.]

Mr. WOLVERTON. Are you going to answer my question or the one Mr. Hogan just handed you?

Mr. PEMBERTON. Mr. Hogan made a correction which is of vital importance in this discussion. He corrects me.

Mr. WOLVERTON. Is Mr. Hogan going to testify?

Mr. PEMBERTON. Yes.

Mr. WOLVERTON. Well, couldn't he wait his turn?

(Laughter).

Mr. PEMBERTON. In any case, I am glad to be corrected.

Mr. WOLVERTON. I see. You do not mind so long as you are an umpire, you are used to having lots of things happen to you?

Mr. PEMBERTON. Yes; the consumption of oil annually, instead of being two billion a year, is one and a quarter billion. Therefore, our 17,000,000,000 barrels of reserve, if that is all there is, would be a matter of some 10 years. [Applause.]

Mr. WOLVERTON. I gather then I am to assume in view of the contribution just made to you by Mr. Hogan that you would want me to wait the additional 2 years before becoming concerned.

Mr. PEMBERTON. Of course, we assume that there are only 17,000,000,000 barrels left, and it is a calculation based on what we know now from existing wells. There are countless areas that will be developed, or which are being developed now, which will double and treble and quadruple that figure.

Mr. WOLVERTON. I was not asking you from the standpoint of wells that were being developed. I asked you what the known reserve was at the present time. Now, when you speak of wells that are in the process of being developed, I assume you mean by discoveries, is that right?

Mr. PEMBERTON. My answer to you is that I did not know what the reserves were outside of the State of California, and my information was obtained from testimony taken before your committee, that there were some 17,000,000,000 to 20,000,000,000 barrels of oil.

Mr. WOLVERTON. Well, I guess it would have been easier to have asked Mr. Harry Sinclair, and he would have said, "Oh, 100 to 500 years," and then it would not have been necessary to impress you with the importance of it as I have.

Mr. PEMBERTON. That is true.

Mr. WOLVERTON. Do you think voluntary curtailment is really effective in this State? What are its deficiencies? Do you know of any?

Mr. PEMBERTON. Oh, my, yes. Of course. All kinds of deficiencies.

Mr. WOLVERTON. Let us have some of them, if you have found any, in umpiring these different companies, give us the conditions that you have found to exist where it seems that the program of curtailment has fallen short of what it should have accomplished.

Mr. PEMBERTON. It has not fallen short of what it endeavored to accomplish, because we have endeavored to stabilize the industry, and by that we mean produce no more than we can consume, and have a very orderly program, and cooperation at all times, and to that extent we have gotten along all right. Then in order to accomplish that, of course, there were minor details which are not strictly according to Hoyle, or strictly according to the way we would like to have them. I assume that I might cite examples—would you like to have me cite examples of the failure of the producers to comply with their recommended quotas?

Mr. WOLVERTON. I do not mean with respect to individuals. I am speaking of it in the larger sense. In what way have you been made conscious of the ineffectiveness of your present voluntary curtailment plan as now carried on in this State?

Mr. PEMBERTON. Well I have not been made conscious of its ineffectiveness at all excepting where in some instances the operators in one field will not curtail strictly to their recommended quota. In other words, they will take a little advantage over the others by their failure to live up to the quota. To that extent, as the umpire, I would have to say they are taking advantage of the others, and there is in this State a considerable amount of, say, holding the umbrella over some of the producers, that is over those who do not comply closely to the terms of the quota.

Mr. WOLVERTON. If you had the authority to do so are there any rules or regulations you would put in effect at the present time and if you didn't have to depend on voluntary cooperation?

Mr. PEMBERTON. Yes.

Mr. WOLVERTON. What are they?

Mr. PEMBERTON. If there had been any authority given to me I could select just one and it would be to do something which I assume is a violation of the antitrust laws, and other things.

Mr. WOLVERTON. Just mention that again. What did you say?

(The reporter read the last answer.)

Mr. WOLVERTON. Now, what would you have them do, if you could, that would be in violation of the anti-trust law?

Mr. PEMBERTON. Because the agreement to be made between the purchasers of oil, wherein they would agree not to purchase more oil from a producer than is their allotment. In other words there are, we will say, many producers, who have no complaint at all concerning their allotment. Perhaps there is a producer that desires to obtain more than his allotment of oil, and so he produces a little more and the purchaser will take it. That causes a little disturbance of curtailment.

Mr. WOLVERTON. Does it affect the price?

Mr. PEMBERTON. No sir.

Mr. WOLVERTON. What about the condition that prevails where a contract exists between a lessor and a lessee for production? Do you find that the fulfillment of that contract in any way handicaps you in the voluntary curtailment program fixed by the central committee?

Mr. PEMBERTON. Yes, indeed it does. We have carried on for years a policy of education with the object of obtaining consent of lessors on the part of the producers. Frequently we are unable to obtain that. There is in California—there are, I should say, a few instances wherein landowners insist on production greater than the allotment allowed by the central committee.

Mr. WOLVERTON. What can you do about that?

Mr. PEMBERTON. There is no remedy at all.

Mr. WOLVERTON. Don't you think they should be brought into the same line with the others?

Mr. PEMBERTON. Well, we would like to have them, but at the same time rather than to submit to some coercive measures, to which all the producers of the State would be subject, except one or two, I believe we would rather coast along in the way we are and endeavor by educational efforts, to get those men to play ball.

Mr. WOLVERTON. Then the situation to which I have related applies to only one or two in this State?

Mr. PEMBERTON. Very few. Very few lessors are insistent upon greater production. The bulk of the lessors, and undoubtedly the larger ones, are willing to abide by the program.

Mr. WOLVERTON. But if you could, you would like to have the authority to bring them into line?

Mr. PEMBERTON. I am willing, Mr. Wolverton—

Mr. WOLVERTON. I say would you like to have the power to bring them into line?

Mr. PEMBERTON. Well, Mr. Wolverton, at this time I am unable to say that I would wish for any more power.

Mr. WOLVERTON. Then you are not a New Dealer. [Applause.] Now what other elements do you think fall down or in any measure handicaps the curtailment program that the central committee attempts to make effective in this State?

Mr. PEMBERTON. I believe we have more trouble with promoters than any other one group. Promoters finance themselves by public subscriptions, offering promises of great and immediate returns, drill wells on small tracts of land. Frequently these promises do not materialize because they have made too many promises that they cannot fulfill. Through our efforts, I will say unofficially, there has been some revision of the policy of the corporation commissioner in issuing permits to promoters and the situation is very, very much better now than it was a while ago and is getting better.

Mr. WOLVERTON. Are there any others?

Mr. PEMBERTON. Oh, I believe I could name several others.

Mr. WOLVERTON. Just give them quickly.

Mr. PEMBERTON. Occasionally a producer—

Mr. WOLVERTON. I wanted to get your opinion as to how effectual a voluntary curtailment program can be. I am asking you to give me the instances where it is not effectual.

Mr. PEMBERTON. Well, the curtailment program as a whole is effectual. There are breakdowns involving details. I would say that the policy of the Federal Government in raising taxes is effectual. They get the money they want, although there may be many people that get by with paying lesser taxes than they should pay, and so on, with all of the laws of the Federal Government, all of their policies are not carried out, just as the law would have it. I believe we hear a

great deal about hot oil and violations of this, that and the other, in Texas. Whether they are founded on fact, I have no knowledge but there are those accusations made from time to time.

Mr. WOLVERTON. That is getting beside the point I am endeavoring to make. I am seeking information from you, as one who is probably in a better position to give it than anyone else, just where do you find that the curtailment problem does not measure up as you would like it to? I am asking you to list them so we can get some idea how worth while your voluntary curtailment program is.

Mr. PEMBERTON. Well, those are about all, that is, we have some landowners that do not like to have production curtailed. There are some producers that won't curtail.

Mr. WOLVERTON. You said there were several more that you could give. Can you give them or are you at the end?

Mr. PEMBERTON. No; I am at the end.

Mr. WOLVERTON. Then you did not mean it when you said you could give a lot more?

Mr. PEMBERTON. I meant I could give a lot more reasons.

Mr. WOLVERTON. Let me bring to your attention your testimony that you gave in 1934 on this question of the voluntary curtailment. On that occasion you said:

The second way of controlling production and regulating it to the consumer demand so we can stabilize our industry and price is by voluntary arrangement.

Now, voluntary curtailment was tried out in California, beginning in the end of 1929, and was caused by the great development of technique in discovering oil fields, drilling to them and getting oil, and thereby California lost nearly all of her export market to the East, because that market could be supplied from Oklahoma and Texas. The need for curtailment came up and producers within the State recognized this, and those that were willing to curtail and were able to did so and those that were not did not do so.

And now I want to direct your attention to these particular words [reading]:

Now, as advisable as voluntary curtailment is, and as strong a sponsor as I would be for voluntary arrangements to be made to regulate the volume of production, I am going to show you how impossible it is.

[Laughter.]

Mr. WOLVERTON. Well, you have gone a pretty good job of showing how possible it is, but you have not told us about how impossible it is, and that is what impressed the committee when we were here 5 years ago.

Mr. PEMBERTON. Well, as I said before, a lot of water has gone under the bridge since that time. The conditions are not the same as they were then at all. It is far from being impossible to carry out now, because we are actually in the act of carrying it out.

Mr. WOLVERTON. And you went on to say [reading]:

It is impossible for many reasons, chief of which is the fact of the bulk of oil production is on the contract basis between the landowner and the lessor, as Mr. Marshall so ably told you yesterday.

Mr. PEMBERTON. That statement refers to the relation between the landowner and the producer, of which now I can only remember one landowner in California.

Mr. WOLVERTON. You can see from the quotation I read to you from your testimony 5 years ago that you were just as emphatic then in presenting to this committee your opinion it was impossible as you are now that it is possible.

Mr. PEMBERTON. Yes.

Mr. WOLVERTON. Is that right?

Mr. PEMBERTON. Yes, that is right.

Mr. WOLVERTON. Now, when did you change your opinion with respect to that?

Mr. PEMBERTON. I am forced to say my opinion was changed in June of this year when we got off the old system of allocation at the insistence of producers that something was wrong and got onto the uniform system, the first time it has worked 100 percent.

Mr. WOLVERTON. When this Atkinson measure was before the legislature you addressed a communication to the committee, did you not?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. And in that, if I have a correct copy, you said this:

Voluntary curtailment fails through the willful refusal of some individuals to curtail within newly discovered oil fields where competition in the capture of oil is the ruling passion. Naturally, most individuals, would rather make a net profit of several hundred thousands of dollars in 1 year than over a period of 20 years. If an individual has no other stake in the industry and is a newcomer in a new field, he has no regard for the industry as a whole and no regard for producers who have been in business in California for years and refuses to curtail and everyone else in the field must likewise or stand suits for drainage from their landowners. Nothing but force can handle such individuals and voluntary efforts are complete failures. Conditions like this are caused in a great part by improper financing. Often the labor is obtained by an agreement of an operator to pay wages out of future production with a bonus. Labor must get its money and the producers turn the wells wide open. Often short-term notes are given by the operator to enable him to purchase supplies and equipment and as soon as his well comes in, he endeavors to get his money back as quickly as possible and half-heartedly promises to curtail when that occurs. The unfortunate thing, however, is that where many producers carry out the same tactics, the price of oil inevitably falls and no producers get their money back.

Now, was that your studied opinion as to the effect of voluntary curtailment when you addressed the communication to Hon. Maurice Atkinson, Committee on Oil Industry, at the State Capitol at Sacramento when that legislation was under consideration by the committee?

Mr. PEMBERTON. What was the date?

Mr. WOLVERTON. April 3, 1939.

Mr. PEMBERTON. I was requested by Mr. Atkinson to furnish him facts and figures relative to exactly how voluntary curtailment worked out and to call attention to the phases within which it did not work, and that was my opinion at that time; yes, sir.

Mr. WOLVERTON. Well, at that time, which is not as much as 5 years ago, you were still of the same opinion then, that curtailment was impossible.

Mr. PEMBERTON. Oh, no; I didn't say curtailment was impossible.

Mr. WOLVERTON. You say voluntary curtailment failed through the willful refusal of some individuals to curtail, and so forth, as I have read it to you.

Mr. PEMBERTON. It would fail——

Mr. WOLVERTON. There is nothing qualified in that statement, is there, when you said voluntary curtailment failed? What did you mean by that statement?

Mr. PEMBERTON. I meant that if the practices listed there were to become general, curtailment would break down, of course.

Mr. WOLVERTON. And those practices were general at that time, were they not?

Mr. PEMBERTON. No, sir.

Mr. WOLVERTON. Then why did you see fit to address a communication to a legislative body that was considering legislation, and give them this thought, which to me, looking at it in a disinterested way, would seem to indicate that you were encouraging Mr. Atkinson in the thought, and also the committee that was to give consideration to it, that voluntary curtailment must fail.

Mr. PEMBERTON. No, I was not, sir. I was simply pointing out the various phases of voluntary curtailment which often had failed. He wanted to know why, or in what respect a voluntary program of curtailment could fail. I called his attention to various things that I had observed, where it did fail.

Mr. WOLVERTON. I will read another section of a letter to you. No doubt you wrote the letter?

Mr. PEMBERTON. No doubt.

Mr. WOLVERTON (reading):

When a barrel of oil is worth only 10 cents, sometimes producers run it down the sewer or burn it up, simply to get it out of the way, and oil stabilization and conservation is ruined. This condition has existed in California many times and could exist this year and may exist this year if stringent efforts at curtailment are not successful. This type of curtailment is the type which is advocated so strongly by the non-well-owning refining company, of which we have several in California. It also would be acquiesced in by some refiners who own very little production in proportion to their total refinery requirements.

(Some one in the audience passed a paper to the witness.)

I would rather that you would not read whatever was passed up to you until I have finished reading. I know that you want to read it, but wait until I finish.

Mr. PEMBERTON. Yes, sir, I will.

Mr. WOLVERTON. The language which you use here: "This condition has existed in California many years and could exist this year and may exist this year if stringent efforts of curtailment are not successful." What do you mean by stringent efforts? Wouldn't that seem to justify legislation on the subject?

Mr. PEMBERTON. I meant that urgent efforts which were actually being made at the time might not be successful.

Mr. WOLVERTON. You were presenting a situation to Assemblyman Atkinson that would be, in your opinion, a catastrophe to the industry, you said it did exist, it could exist this year and then it may exist this year if stringent efforts at curtailment are not successful. Now, with the dire consequences you had pictured, wouldn't that seem to be a justification to Mr. Atkinson and those who had supported him in an effort for compulsory curtailment?

Mr. PEMBERTON. I don't know what he thought about that letter, he did not reply to it.

Mr. WOLVERTON. Well, I think the reply probably was the legislation that was passed.

Mr. PEMBERTON. Of course, the legislation at that time had not been passed; there was only a proposed bill. There were hearings being held up there and both sides in this controversy, beginning with Mr. Atkinson, down to the Independent Producers and Consumers League, were asking me for information, data and statistics and one thing and another to bolster up either side of the thing, and I, as an umpire,

could take no side in it at all, and I told both sides I would furnish them with data, statistics and so forth, which I did. The facts, of course, speak for themselves. If you will take the production for each month of last year as furnished you yesterday by Mr. Aubert, you will see what the production was in the months preceding the writing of that letter, February 1939, and then compare that to the production in June of the same year when we finally completed our stringent efforts to effect curtailment.

Mr. WOLVERTON. Did you expect a reply from Mr. Atkinson?

Mr. PEMBERTON. Yes, I did.

Mr. WOLVERTON. Did you impress upon him secrecy and the treating of the letter as confidential—I may say I did not get it from Mr. Atkinson.

Mr. PEMBERTON. Yes, sir; I asked him to keep this confidential. I asked him particularly not to disseminate it to the press.

Mr. WOLVERTON. Being such an important individual in the oil industry as you are by virtue of your position, being able to know more of the situation than anyone else, then, why did you, in giving information to a committee that was seeking information on an important matter in California, want your information kept confidential and not to be given to the press?

Mr. PEMBERTON. For the reason that I endeavor at all times to refrain from stirring controversies up, stirring producers up one against the other and it would appear very easy, if certain excerpts from that letter would be quoted or thrown in my face from one group, it would anger another group.

Mr. WOLVERTON. Were you not acting in the best interest of the oil industry when you were emphasizing the importance of making stringent efforts to have a curtailment program?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. Well, then, acting in the capacity of one who is interested in the best interest of the industry, were you not willing to go before the committee, go before the legislature and its committee and testify there as you are testifying here before us, giving the benefit of your thought?

Mr. PEMBERTON. I was advised not to by several fellows who had been up there.

[Laughter.]

Mr. WOLVERTON. The same fellows did not advise you to appear before this committee at any time?

Mr. PEMBERTON. No, sir.

Mr. WOLVERTON. So you followed the advice of friends against your best judgment?

Mr. PEMBERTON. No, sir; it had been my best judgment not to go up there, and I inquired of some of the individuals who had appeared up there and they said that it was a very unsatisfactory type of examination which a man would be subjected to, that he would be asked questions and not permitted to explain or enlarge on his answer, and it was a sort of an inquisitory type of examination. And I decided to have nothing to do with it.

Mr. WOLVERTON. Well, I heard considerable applause when you said you had been advised not to go up there, and am I to assume that those who did advise you are in the room?

Mr. PEMBERTON. I do not believe so. I cannot imagine why they applauded yet.

Mr. WOLVERTON. Well, then, your fear was that you would stir up the industry and the whole curtailment program as instituted by the central committee would fall apart?

Mr. PEMBERTON. No; it was not that. The facts are that beginning in December of 1938—the account of which I believe you have there in the article which you referred to yesterday as having read—a committee, in fact, two committees, had been appointed, and they were very active, and the consumers were represented, to study the curtailment situation in California, with the object of making recommendations as to improvements, if any, or what was wrong with it, because it was not working at that time. During the early months of 1936—that is, January, February, and March—when that letter was written, and the ensuing months of April and May, there was more study being given to curtailment procedure in California than ever before. As was customary—or rather, not customary, but it frequently happens—you would find several different groups of producers each with a different thought as to the proper way that this curtailment procedure should be perfected. We were at that time crystallizing all those thoughts and getting them together and compromising between the different groups as to what their desires were of changing the curtailment procedure. And we were approaching a harmonious conclusion. I did not want at that time to get those people's minds off any subject that they were on, and did not want to sidetrack it with controversy and the pros and cons on the Atkinson bill. That is why I asked Atkinson to be confidential with respect to my information. I wanted also that in the passage or the non-passage of the legislation at the legislature, that it should be done upon the facts and not upon some hypothetical or theoretical grounds.

Mr. WOLVERTON. You said that you objected to going to the legislature because they would ask questions and you would not be able to properly present the matter. It seems to me you handicapped yourself greatly when you were reducing your thoughts to writing and then left no opportunity open for it to be explained. But the language that you have used throughout this letter, and I have only read parts of it, would leave the impression that you were not so sure that voluntary curtailment was the solution of the problem. For instance, you say this, after referring to the effort at voluntary curtailment in other States:

However in the past voluntary curtailment failed to achieve its purpose when the ratio of available production to demand became too great. During that period of California's oil industry when potential production exceeded the demand for petroleum, voluntary curtailment in California had been fairly effective, and only in certain periods has it broken down completely, and a period of 3 to 6 months' demoralization ensues thereafter.

and you went on to say,

This form of curtailment has been adopted by many of the oil-producing States in the Union when voluntary curtailment finally failed. From the point of view of conservation and permanent stabilization it is the best form.

Now what do you mean is the best form? Are you referring to legislation there or to voluntary curtailment?

Mr. PEMBERTON. Read the sentence again, please.

Mr. WOLVERTON. "This form of curtailment," referring to voluntary curtailment, "has been adopted by many of the oil-producing States in the Union when voluntary curtailment finally failed." I was mistaken when I inserted the word "voluntary" before. "This form of curtailment," referring to legislative curtailment, "has been adopted by many of the oil-producing States in the union when voluntary curtailment finally failed. From the point of view of conservation and permanent stabilization it is the best form." Now, does that not relate to legislation?

Mr. PEMBERTON. Yes, sir; when——

Mr. WOLVERTON. Pardon me just a minute so I can get this before you and I want you to have full opportunity to answer, but I want you to get my point. Were you advocating to this committee that from the point of view of conservation and permanent stabilization, that legislative curtailment is the best form?

Mr. PEMBERTON. Only when voluntary curtailment failed.

Mr. WOLVERTON. But you say in your letter, "It is the best form."

Mr. PEMBERTON. It would be the best form if voluntary curtailment has failed.

Mr. WOLVERTON. As between voluntary curtailment and legislation, then you do not think that legislative curtailment is the best form?

Mr. PEMBERTON. That is correct.

Mr. WOLVERTON. Well, I do not take it that way from the way it is expressed in your letter to Mr. Atkinson. It may be, if you had appeared before the board, you might have expressed it in a different form from the way you did in your letter, but you did ask that this expression of your opinion on your part should not be made public. Have you any objection at this time to have your letter introduced in the record?

Mr. PEMBERTON. Oh, no objection; it is past history now. Lots of people know about that.

Mr. WOLVERTON. Well, to save your time and that of other witnesses and the committee, I won't read further from the letter.

Mr. PEMBERTON. All right.

Mr. WOLVERTON. But we will introduce it in the record at this point.

(The said letter is in words and figures following:)

APRIL 3, 1939.

Hon. MAURICE ATKINSON,

Assemblyman, Seventieth District,

Committee on Oil Industries, State Capitol, Sacramento, Calif.

DEAR MR. ATKINSON: I acknowledge receipt of your letter of March 30, inviting me to appear on April 4 at rehearings by your committee upon Assembly Bill 1926.

I greatly appreciate the invitation, but, because of the position I occupy in the oil industry, I believe it would be inadvisable for me to appear. At the present time the industry is facing a difficult situation with continued overproduction of crude oil, and there are many conflicting ideas with respect to ways and means of stabilizing the industry (and on your Assembly Bill 1926) and solely for the purpose of harmony which I endeavor to obtain at all times and with the object of preventing recriminations by one side or the other in case I should appear before your committee, I believe it much better to remain away. In order, however, that your committee may have my complete ideas upon curtailment, I am enclosing herewith a statement which I ask that you use confidentially in your committee, if possible, and prevent its dissemination widely and certainly not in the press. I feel the statement is self-explanatory and were it not for my desire to maintain as

much harmony as possible in the industry, I would be delighted to present the facts therein in person. The review represents my honest, unbiased viewpoint and is not to be taken as either expressing my strong support for Assembly Bill 1926 or my opposition to it.

Trusting that you will understand the situation and expressing a desire to assist your committee in any way possible, I am,

Very truly yours,

J. R. PEMBERTON.

CURTAILMENT OF PRODUCTION OF CRUDE OIL

PURPOSES

Curtailment of any raw product is necessary and especially one so vital to the maintenance of all of our civilized and industrial functions as is petroleum—

1. To prevent waste.
2. To balance consumption with supply.
3. To stabilize all operations by maintenance of constancy within the oil industry.
4. To stabilize labor conditions.
5. To stabilize prices; not make oil dear to the public but with reference to all other commodities.

¹ The first category, the prevention of waste, is accomplished through curtailment—

1. By the elimination of large and excessive above-ground stocks of crude oil which are subject to evaporation.
2. Possible loss by fire.
3. Leakage of tanks.
4. A loss of respect by producers simply through the vastness of the amount produced.

CURTAILMENT OF PRODUCTION OF CRUDE OIL

The best storage place for oil is in the ground and oil should not be lifted until it can be used. A certain amount of stock is necessary in order that refining operations may be continuous even though break-downs may occur in producing fields or pipe lines.

THREE FORMS OF CURTAILMENT

1. *Automatic curtailment.*—With the exception of rather temporary periods, it may be said that there always will be curtailment. With no programmed curtailment, curtailment will result automatically because under unrestrained, competitive conditions, great excess supply will force buyers to reduce prices until only the lowest-cost producer (the producer owning large, flowing wells) will survive. Under such conditions, buyers will never buy more than they can sell, but nevertheless curtailment is, therefore, truly in effect. The results, of course, are ruinous to labor in that all of the employees of the small stripper wells and medium-sized pumping wells will lose their employment. It is, of course, well known that, out of California's 18,585 oil wells, 11,283 of them are incapable of producing more than 25 barrels daily each. A catastrophe such as would occur under an automatic curtailment would thereby throw about 60 percent of California's oil-field labor out of employment. Under such conditions, tremendous waste results simply through lack of respect for oil. When a barrel of oil is worth only 10 cents sometimes producers run it down the sewer or burn it up simply to get it out of the way and all stabilization and conservation is ruined. This condition has existed in California many times and could exist this year and may exist this year if stringent efforts at curtailment are not successful. This type of curtailment is the type which is advocated so strongly by the non-well-owning refining company, of which we have several in California. It also would be acquiesced in by some refiners who own very little production in proportion to their total refinery requirements.

2. *Voluntary curtailment.*—Voluntary curtailment is the only form which has ever been in effect in California, with the exception of the period from September 4, 1933, to May 28, 1935, when the Code of Fair Competition for the Petroleum Industry under the National Recovery Administration was in effect. Voluntary curtailment has been in effect in every producing oil State in the Union up to the time that State laws were passed to regulate production. It is also in effect now throughout the world where conditions make it possible. It is the best

form of curtailment because of the low cost of administration, its adaptability to changing conditions through its being unhampered by hard and fast regulations difficult to change, and is the most satisfactory to the individual producer because he participates in the arrangements of the deliveries. However, in the past, voluntary curtailment failed to achieve its purposes when the ratio of available production to demand became too great. During that period of California's oil industry when potential production exceeded the demand for petroleum, voluntary curtailment in California has been fairly effective and only in certain periods has it broken down completely and a period from 3 to 6 months of demoralization ensued thereafter.

3. *Curtailment by law.*—This form of curtailment has been adopted by many of the oil-producing States in the Union when voluntary curtailment finally failed. From the point of view of conservation and permanent stabilization, it is the best form. It should not be attempted until voluntary curtailment fails, because it is expensive to administer, the regulations are difficult to adjust to fit peculiar and individual conditions from the standpoint of equity without violating rules of uniformity.

WHY VOLUNTARY CURTAILMENT FAILS

Voluntary curtailment fails through the willful refusal of some individuals to curtail within newly discovered oil fields where competition in the capture of oil is the ruling passion. Naturally, most individuals would rather make a net profit of several hundred thousands of dollars in 1 year than over a period of 20 years. If an individual has no other stake in the industry and is a newcomer in a new field, he has no regard for the industry as a whole and no regard for producers who have been in business in California for years and refuses to curtail and everyone else in the field must do likewise or stand suits for drainage from their landowners. Nothing but force can handle such individuals and voluntary efforts are complete failures. Conditions like this are caused in a great part by improper financing. Often the labor is obtained by an agreement of an operator to pay wages out of future production with a bonus. Labor must get its money and the producers turn the wells wide open. Often short-term notes are given by the operator to enable him to purchase supplies and equipment and, as soon as his well comes in, he endeavors to get his money back as quickly as possible and half-heartedly promises to curtail when that occurs. The unfortunate thing, however, is that where many producers carry out the same tactics, the price of oil inevitably falls and no producers get their money back.

Sometimes a non-well-owning refiner obtains a drilling site in the middle of an otherwise curtailed field, obtains a satisfactory well and refuses to curtail, thereby causing the entire field to open up. The refiner does this deliberately with the object of forcing prices down with the obvious serious result to labor and the entire industry.

Production from an oil well declines from the day it is brought in according to definite and fixed laws of nature. New oil wells must be drilled continuously and new fields discovered in order to maintain the requirements of the consuming public. When new production is brought in too fast, producers in old fields and producers who have no locations upon which they can drill new wells, resent being ordered aside with constantly reduced allotments to make room for the new wells. They refuse to reduce their production and excess production results.

Landowners under financial stress frequently refuse to consent to curtailment of wells on their property and thereby cause immediate overproduction throughout the entire field.

Voluntary curtailment in California is effected by a Central Committee of California Oil Producers, comprising the elected chairmen of 24 separate and distinct oil producing fields and/or districts within the State. Elections are held annually and each producer has one vote in each district. The central committee therefore is a representative group and each member has behind him as his constituency the producers in his own district. Curtailment is programmed by this committee and because of the diversity of interests of the individuals composing the committee and the characteristics of the many oil fields in California, I am confident that the resulting program is and has been extremely equitable and of course represents in all cases the unanimous or very nearly unanimous vote of the entire committee. However, many strong, individual producers resent some of the regulations adopted by this committee and refuse to curtail to their recommended quotas.

Such producers frequently can obtain some following and take matters into their own hands and calculate a curtailment program for themselves which, while equitable among themselves within the field, results in the field producing a great deal more oil than it should with reference to other similar fields. At present, for instance, we have five fields in which curtailment recommended by the central committee is not acceptable, but another form of curtailment is. Yet the results of such practice is the actual cause of our present and for some time past great overproduction within the State. The situation is somewhat similar to a man who admits that taxes must be levied but has decided that his tax is too great to pay and pays a lesser amount. With no force with which to collect taxes, not enough taxes would of course be collected under such a system.

My experience as oil umpire for 7 years has brought me in contact with every producer of oil in the State and I have been able to classify those opposed to curtailment into three classifications:

1. The man with a well so big and with such vast pressures within it that it would burst if he curtailed the well a drop.

2. The man whose well has so much water in it that if he curtailed it a minute, he would lose the well.

3. The man, who because of his experience of operation, would suffer financial loss were he to curtail the well a barrel.

The first classification refers to the obvious chiselers; the second classification is taken care of if the facts justify it, by an elimination of curtailment for that producer. However, the producer does not have to convince me of his situation, but he must convince his neighboring producers in the same field, who usually own the same kind of wet wells and have no trouble curtailing them. The third classification, upon actual study, indicates an extremely uneconomic type of operator and reflects nothing more or less than extremely poor business. There are a great many wells in California under receivership and receivers frequently fall in this classification. The United States Government has issued a pamphlet showing the actual cost of producing oil in most of the oil fields in the United States, based upon an enormous mass of data which it has obtained from all sources. There should be no excuse for a producer through poor business to be put to a cost of producing of say \$1 per barrel when throughout California the highest cost averages about 55 cents and most pumping properties is less than 35 cents per barrel.

A producer under voluntary curtailment can if he insists curtail his production to the recommended quota as a producer in any way that he may choose. Producers in this frame of mind sometimes transfer their recommended production from one field to the wells of another field, due to the fact that perhaps the oil in the second field brings a larger price per barrel than that in the first field; or perhaps the cost of production is much lower in the second field than in the first field. Such practices of course are not approved by the Central Committee and when the producer insists on curtailing in that manner as a company, there are other producers who are irked by such practices and in looking for some good excuse to refuse to curtail their own production, hit upon this heinous offense and do not curtail.

All of the above causes of failure of a voluntary system to work are actually in effect and operative right now. We have excess production in many fields and upon analysis the reasons could be found in the above outlined excuses.

PRESENT CONDITIONS IN CALIFORNIA

Voluntary curtailment is not effective. It has not been effective since September 1937. About 40,000,000 barrels of oil in excess of what was needed have been produced since that time and are now stored in above-ground concrete lined earthen reservoirs and steel tanks. There is only one reason for that: There are too many producers who refuse to curtail to their recommended quotas. One good noncurtailing well in a field causes the whole field to overproduce.

We have now within the State the largest number of wells; the largest number of fields; the greatest potential production or ability to produce and the greatest undrilled potential acreage ever experienced before in the State. In addition, the market for California oils is declining. A great part of the Oriental business cannot possibly continue indefinitely. Curtailment which is not effective now is facing the need for a much greater curtailment in the near future. Strenuous efforts have been made beginning in the middle of December 1938 to reduce production of oil and while I am happy to say that a reduction of 40,000 barrels daily was obtained (from 665,000 barrels daily in November 1938 to 625,000

barrels daily in March), the production should have been during that period well under 600,000 barrels at all times. Improvements gradually are taking place in spots here and there, but improvement is not enough.

SUPPLEMENTAL STATEMENT ON CURTAILMENT OF PRODUCTION OF CRUDE OIL

GAS WASTAGE

There are in my opinion adequate laws now existent in California and forming a part of the Code, which if rigidly enforced, would cure a very large part of our present difficulties, especially in new and flush fields in which there is a great deal of gas produced with the oil. I refer to our present statutes against gas wastage. The gas wastage statutes positively have not been rigidly enforced. There is today gas being blown to the air in many oil fields in large volumes for which there is no excuse whatever. In one field in particular, wet gas is being blown to the air, wet gas being gas as it comes from the well and containing casinghead gasoline in the form of condensate. If these statutes actually were enforced, the oil would be curtailed automatically in these fields and our voluntary system would be close to a complete success.

ADMINISTRATION OF CURTAILMENT

Inasmuch as the assembly intends to consider and perhaps vote on assembly bill 1926, I have heard a great many oil producers state that if the legislature should pass an oil control bill, they wished that the administration of such an act could be originated under a system similar to the one which we now have and which has been in effect for many years, instead of the administration of the act being in the hands of three commissioners whose qualifications as outlined in the bill might preclude the type of commissioner who through inexperience and lack of knowledge of the oil industry would be actually incapable of functioning until the lapse of considerable time, during which he would be assimilating the various conflicting factors with which he would have to deal.

I would like to suggest that the bill be amended to the effect that the operators themselves should elect annually a committee of themselves which committee would have the authority to program the curtailment, with a paid commission perhaps appointed as called for in the bill to constitute a board of appeal on the part of operators who care to protest against the recommendations of the elected committee. I feel that regardless of who has the responsibility of eventually issuing schedules of production to operators, that such schedules would after all be tested in the courts by some disgruntled operator and that of a certainty the experiences of our present system after the trial and error of many years would be far more apt to promote a scheme of allocation which would be held reasonably fair and equitable by a court of law than would a commission having had no previous experience. Also of considerable merit would be the fact that the Industry itself would have a definite hand and function in devising the program of curtailment.

[Western Union]

LOS ANGELES, CALIF., April 10, 1939.

HON. MAURICE ATKINSON,

Committee on Oil Industries, State Capitol;

Gas wastage: Since writing my supplementary statement to you on gas wastage, I have reviewed the current production and blow to the air of gas in those fields which are not curtailing in oil production to the recommended quotas and I am astonished to discover that the actual gas wastage in fields which are overproducing is very small and that therefore mere enforcement of the gas law would not in any sense solve the problem of overproduction or oil while it is unquestionably true that strict enforcement of the gas wastage laws would be helpful in reducing overproduction in a few high gas oil ratio fields in most fields there is so small a proportion of natural gas in the formation with the oil that great overproduction or oil results from those inclined not to follow the curtailment program with still no wastage of—thus the gas wastage laws are ineffective to prevent overproduction of oil.

It is also of course possible through the application of artificial gas lifting methods to produce large quantities of oil from wells through the introduction of gas and recycling of such gas thereby circumventing the gas wastage laws.

The ultimate objective of course of any sound oil conservation program is to have oil production curtailed to balance market demand. With producers who refuse to take their part in curtailment, it is, has been, and probably always will be possible for such producers to get around the gas wastage law and still over-produce. Another thing of great importance is the fact that our greatest demand for gas occurs in the winter when there is the least demand for oil and many producers can produce vastly in excess of their share of the market demand for oil and still waste no gas. In my opinion, the only proper way to be sure that oil production will be properly conserved is to have laws to actually enforce the proration of oil. Voluntary curtailment cannot hope to meet this problem.

J. R. PEMBERTON.

After the sending of that communication, did you send any supplemental statement to the committee?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. What was the reason for the supplemental statement? What did that cover?

Mr. PEMBERTON. After I had written that letter, I remembered that I had not called attention to the existing laws in California relating to the conservation of gas and the blowing of natural gas in the air, and I thought it advisable to follow that up with a supplement to cover that subject.

Mr. WOLVERTON. Was the purpose of your supplement to ask additional legislation with reference to the present gas law, that it might be made stricter and more effective?

Mr. PEMBERTON. No, it was not that, although the thought was expressed in the supplemental statement that perhaps the legislature might devote some attention to improving that law, while they were after this other one.

Mr. WOLVERTON. You have stated in your letter, from which I read:

There is today gas being blown into the air in many oil fields in large volume, for which there is no excuse whatever.

Now, was that sentence put in there with the thought that by bringing that to the attention of the committee they might strengthen the gas laws?

Mr. PEMBERTON. No, but to call their attention to the fact that there were gas laws which were not being enforced, and at the same time to call attention to the futility of passing an additional law that they did not intend to enforce.

Mr. WOLVERTON. Did you make any suggestion to the committee as to how the bill might be amended to make it more satisfactory?

Mr. PEMBERTON. No, sir; I did not.

Mr. WOLVERTON. Then why—I want to read this to refresh your memory:

I would like to suggest that the bill be amended to the effect that the operators themselves should elect annually a committee of themselves, which committee would have the authority to program the curtailment, with a paid commission perhaps appointed as called for in the bill to constitute a board of appeal on the part of operators who care to protest against the recommendations of the elected committee.

Now, isn't that the suggestion of an amendment?

Mr. PEMBERTON. I thought when you asked the first question, I thought you referred to an amendment to the existing gas law.

Mr. WOLVERTON. Then you were suggesting only an amendment to the Atkinson law?

Mr. PEMBERTON. Rather, a change in the wording of the Atkinson bill, I believe, but possibly an amendment; yes.

Mr. WOLVERTON. Did you intend to infer that if any amendment was made, that you would be in favor of the Atkinson law?

Mr. PEMBERTON. No, sir; I put that statement in the supplement because I had heard a considerable amount of discussion among the producers about the terms and conditions of the Atkinson bill, and there had been expressed by quite a number of producers—they didn't express them to me, but in my presence, that the principal objectionable feature in the Atkinson bill was concerning the ability of the Commission to act on the bill, and that if they had a committee similar to our central committee, there would be far less objection, and if the bill were in that form, it would be satisfactory to many of the producers.

Mr. WOLVERTON. Well did you at any time in either your original letter or in the supplementary statement inform the committee your position on the Atkinson bill?

Mr. PEMBERTON. No, sir. The letter of transmittal, in that I particularly went to the trouble of telling Mr. Atkinson that I was neither opposed to it nor was I in favor of it, and nothing in my statement should be construed as an indication of my position at all.

Mr. WOLVERTON. But you did show interest enough in the bill to point out conditions the voluntary curtailment program was not able to meet with, and further how the bill might be amended to be more satisfactory?

Mr. PEMBERTON. I think so; yes. I think that anyone, if anyone feels that a bill may be passed, that he should say what he would like to say with regard to some of the clauses in the bill.

Mr. WOLVERTON. That is right. I think you are right in that. Now then, you sent a telegram dealing with the gas situation, did you not?

Mr. PEMBERTON. Yes, sir; but not to Mr. Atkinson, though.

Mr. WOLVERTON. I think it was to Mr. Atkinson. It was dated April 10, and it was addressed to the Honorable Morris Atkinson, Committee on Oil Industry, State Capitol, and I want to reiterate here that this did not come to me in any way through Mr. Atkinson, but through records of the committee that were made available, which enabled me to have a copy of it. I say that in all justice to Mr. Atkinson so that he or anyone else might not feel that we had violated any confidence which you might have requested him to respect in sending the letter to him.

Mr. PEMBERTON. I would have given you a copy of it myself. There was no need of the explanation when I would have given you a copy——

Mr. WOLVERTON. I think maybe you would. The telegram you sent refers to gas wastage and I shall read it:

GAS WASTAGE

Since writing my supplementary statement to you on gas wastage, I have reviewed the kind of production and blow to the air of gas in those fields which are not curtailing in oil production to the recommended quotas, and I am astonished to discover that the actual gas wastage in the fields which are overproducing is very small and that therefore mere enforcement of the gas law would not in any sense solve the problem of overproduction of oil, while it is unquestionably true that the strict enforcement of the gas wastage laws would be helpful in reducing

overproduction in a few high gas-oil ratio fields. In most fields there is so small a proportion of natural gas in the formation with the oil, that great overproduction results from those inclined not to follow the curtailment program with still no wastage of—

the continuity seems to be broken—

thus the gas wastage laws are ineffective to prevent overproduction of oil.

Do you get that thought that I just read from the telegram?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON [reading]:

Thus the gas-wastage laws are ineffective to prevent overproduction of oil. It is also of course possible through the application of artificial gas lifting methods to produce large quantities of oil from wells through the introduction of gas and recycling of such gas, thereby circumventing the gas wastage laws. The ultimate objective, of course, of any sound oil conservation program is to have oil production curtailed to balance market demand. With producers who refuse to take their part in curtailment, it is, has been, and probably always will be possible for such producers to get around the gas wastage law and still overproduce. Another thing of great importance is the fact that our greatest demand for gas occurs in the winter when there is the least demand for oil and many producers can produce vastly in excess of their share of the market demand for oil and still waste no gas. In my opinion, the only proper way to be sure that oil production will be properly conserved is to have laws to actually enforce the proration of oil. Voluntarily, curtailment cannot hope to meet this problem.

Now, what could be stronger, than those words that you closed that telegram with: "The only proper way to be sure that oil production will be properly conserved is to have laws to actually enforce the proration of oil. Voluntarily curtailment cannot hope to meet this problem." Now, what could be stronger than that?

Mr. PEMBERTON. There could not be anything stronger.

Mr. WOLVERTON. Evidently you and I agree.

Mr. PEMBERTON. Of course the facts are that, to be sure—to be sure, I say—that for your curtailment to be always effectual and perfect is to have laws which are enforced. That is correct.

Mr. WOLVERTON. That is the last word, is it not, that you advanced to Mr. Atkinson as sponsor of this legislation? What conclusion could any individual come to who is interested in legislation, from the strong language you have used, other than you were giving support to the very thing he was trying to do to make it a subject of State legislation instead of a voluntary matter?

The only proper way to be sure that your production will be properly conserved is to have law to actually enforce the proration of oil. Voluntary curtailment cannot hope to meet this problem.

Mr. PEMBERTON. That is a little strong there in the last sentence. [Laughter.]

Mr. WOLVERTON. I assume you mean it is a little strong in view of the testimony you have given today.

Mr. PEMBERTON. No, in view of the subsequent facts, that our hopes were actually justified, that we really did get curtailment very effective. It looked there for a time it was pretty rocky.

Mr. WOLVERTON. I will ask, Mr. Chairman, this letter, the explanatory statement, and the telegram be made a part of the record.

Mr. COLE. May I ask Mr. Wolverton to yield at this point.

Did you understand this morning when I asked you if you wrote a letter to the legislature about the Atkinson bill and you said No, that I was referring to this correspondence?

Mr. PEMBERTON. No. The facts are——

Mr. COLE. What did you think I was talking about when I asked you this morning if you had taken a stand on this legislation while it was pending and after its passage?

Mr. PEMBERTON. I want it clearly brought out the Atkinson bill as it was finally enacted was not by any stretch of the imagination the bill that was being considered by the committee at that time. Atkinson's name was of course attached to the bill in its original state. Then it was amended and changed around and finally in the form in which it was passed was unlike the original bill, so I have not and did not address any letters to anyone concerning the Atkinson bill as we understand it today.

Mr. COLE. All right. I understood you to say that Mr. Wolverton had asked you for this letter and telegrams and that you would supply them. Do you have some copies with you?

Mr. PEMBERTON. Have I?

Mr. COLE. Yes.

Mr. PEMBERTON. I haven't here; no.

Mr. COLE. All right.

Mr. WOLVERTON. This morning you said you would like to make some statement about price. What did you have in mind?

Mr. PEMBERTON. No. I asked if you wanted to ask me any questions about price.

Mr. WOLVERTON. That is very encouraging, to have the witness suggest that to me. Well, I would like to ask you some, I don't know why you put it in my mind to do it, but I would not want to disappoint you, and I will accommodate you. What variance is there in the price that is paid for oil in this State that is used in the domestic market as compared to the price that is paid for oil that is sold to Japan?

Mr. PEMBERTON. I don't know what price Japan pays for any of its oil purchases.

Mr. WOLVERTON. Do you know whether there is any difference in price that is paid in the immediate field in which your industry operates and that which is farther removed?

Mr. PEMBERTON. Do you mean is there a difference in the price paid for oil in California as compared to Texas?

Mr. WOLVERTON. No, I did not have that in mind. I don't think you are supplying Texas with oil. [Laughter.]

Mr. PEMBERTON. No.

Mr. WOLVERTON. What I had in mind was this: You had a sliding price scale that was effective some places and other places it was a different price and particularly with reference to the oil that is sold to Japan.

Mr. PEMBERTON. Well, I have no remarks to make at all on the prices paid by purchasers of oil for oil sent out of California. I know nothing of that. I do know about the prices paid by purchasers of oil to producers of crude oil within the State.

Mr. WOLVERTON. Is there any variance in that price?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. How much of a variance?

Mr. PEMBERTON. There is a great variation, due to the gravity of the oil and the location of the oil.

Mr. WOLVERTON. Well, of course, I assumed that the question of gravity might be a factor in fixing the price.

Mr. PEMBERTON. That is about the only variation.

Mr. WOLVERTON. On the basis of the same type of oil, is there any variance in the price?

Mr. PEMBERTON. I believe not, except with respect to distance from refineries involving the pipe-line transportation charges and the like.

Mr. WOLVERTON. Who could give me the information with respect to the prices paid by domestic users and the price paid by Japan in its purchases?

Mr. PEMBERTON. I don't know, other than the marketing companies themselves.

Mr. WOLVERTON. Can you think of any individual that would have that information among your friends here in this audience or could give us this information or assist us in getting the information?

Mr. PEMBERTON. I don't know, unless there are some volunteers here. I believe that the prices that are paid by purchasers of oil that is shipped out of California are known to the sales managers of the larger companies. I don't believe any of them are here.

Mr. WOLVERTON. You do not wish me to assume that they have advisers who tell them to stay away, do you?

Mr. PEMBERTON. Oh, no. This matter is a matter foreign to the activities of a sales manager and I would be surprised to find any of them here.

Mr. WOLVERTON. Well, I am sorry that you cannot help me after suggesting that I ask you some questions.

[Laughter.]

Now, let's try with respect to why there is a difference in the refinery gasoline price in California with the same type of oil in the Texas-Gulf Coast; in other words, the information I have is that the average posted crude oil price from 1931 to 1938 in California was, Signal Hill oil, 27 grade was 96.2; the average yield of gasoline from that oil was 13.6 gallons and that the actual refinery gasoline price was 7.1, whereas in Texas-Gulf Coast that 27 degree gravity oil, the actual refinery gas price was 5.4. In other words there was almost 2 cents difference or to be accurate a cent and seven-tenths difference.

Mr. PEMBERTON. You ask me to explain that?

Mr. WOLVERTON. Yes.

Mr. PEMBERTON. I do not know how to explain that at all, other than to say possibly the costs of manufacture in Texas might be lower, to justify such a price. It is possible in comparing oils of the same gravity, 27-gravity oil, that one oil may have a little more gasoline in it than another oil, although they are both of the same gravity. It might be possible that refiners, to manufacture gasoline, may want oil from which they can recover the gasoline at the lower price, and still make a profit. My idea to that price situation is that these prices seek their own levels, they would just about have to do that, to do it that way.

Mr. WOLVERTON. Had you finished?

Mr. PEMBERTON. Yes, sir.

Mr. WOLVERTON. In looking at the report I have before me, it would seem to me that probably the most ready answer is the fact that in California you only produce on the average 13.6 gallons of gasoline

from a barrel of oil, whereas in Texas, the Outpost Oil Co. produces 18.2 gallons, which would indicate that the more gasoline taken from oil, the cheaper the price. And then turning over to some additional figures that I have here, I find where these Texas people average as high an average of gasoline per barrel as 19 gallons. In the Mid-Continent, the average yield of gasoline per barrel is 21 gallons. In the later instance the price is only 4.7 cents, indicating that the higher the yield per barrel of crude the lower the price of gasoline per gallon. Why is it that there is such a wide variance between the amount of gasoline per barrel of oil from the company which I have used as an illustration, the Signal Hill Oil Co., and the Texas-Gulf Coast oil, both of which produce oil of the same gravity?

Mr. PEMBERTON. I am sure I do not know, unless it is the nature of the oil itself that is just that way.

Mr. WOLVERTON. Could it be that that production being in larger volume than it should be, that an effort is not made to crack it down to the extent that it is down in Texas, in other words, there is a greater skimming, or a quicker skimming of the oil, and taking away all that you can get out of it, and then using the balance for storing or for fuel purposes, or something of that sort?

Mr. PEMBERTON. I doubt if that is likely to be the truth. I believe in no case do producers or refiners leave gasoline in oil that they can't extract, unless they happen to have orders for diesel oil or something like that, which is the next cut below gasoline, and out of which they can make more money than going to the trouble of making more gasoline.

Mr. WOLVERTON. The reason that I have asked you to explain it—and if you do not, maybe some witness that follows you will—was a statement that I have seen [reading]:

One reason given for California's lower cracking operation has been that, without an adequate control of crude-oil production, the refineries have been compelled to handle such a large volume of crude that, in many instances, they have only "topped" the crude, distilling off the lighter gasoline fractions and storing the remainder as fuel oil, frequently in reservoirs. There has been no increase in the average yield of gasoline at California refineries over the past 10 years.

Is that statement true or not, and if not true, in what way should it be corrected or in what way is it wrong?

Mr. PEMBERTON. I am unable to answer that. My impression is just the opposite, but I really do not know what the refining situation is.

Mr. WOLVERTON. Well, I had other questions that I wanted to ask you, but the hour has gotten too late. I apologize to the committee for having taken up so much of their time. I would like to have gone into the system of the central committee and to get some explanation of their workings, and I understand that that is one of the things that you wanted to do, because you were fearful of the antitrust law. But now you are able to control production by your voluntary curtailment. I assume, as you are not a lawyer, that it would not be fair for me to question you with reference to that matter.

Mr. PEMBERTON. Well, the answer is that we did not at any time interfere with the movement of oil after it is produced into commerce, and it is their desire to stabilize the business.

Mr. WOLVERTON. The thought I had in mind was that if the State of California saw fit to enact legislation that would enable the fixing

of an allotment of production among producers, such as applies in Texas and these other States, and which arrangement has had some recognition from the Federal Government by the passage of the so-called Connally "hot-oil" law, that you might be avoiding any possibility of a prosecution under the antitrust law. I assume that your counsel has advised you that you have no reason to be fearful of a situation like that, and that, while you could not control prices, you can control production. You may be justified in that, but I have not yet been able to see the distinction.

Mr. PEMBERTON. We made no attempt to control production, but simply asked the producers to control their own production.

Mr. WOLVERTON. Well, if the manufacturers of certain goods agreed among themselves as to control of the production of their products, I think there would be some department of the Government justified in questioning their right to do so.

Mr. PEMBERTON. That has apparently been brought to the attention of the Government, because we have great numbers of F. B. I. men and Federal Trade investigation men investigating us from one end to the other, investigating our set-up, and as far as I have ever heard, they have not found anything wrong with it.

Mr. WOLVERTON. Well, I am not passing upon the constitutionality of what you do or should not do. It may be that the advice your industry has received in the matter is good and maybe my thought is wrong, but it seems to me that it is worthy of consideration.

Mr. COLE. Mr. Pearson, did you want to ask a question?

Mr. PEARSON. No.

Mr. COLE. Any other members? This morning you referred to page 505 of the hearing, testimony given before a committee in Washington, in which Dr. McLaughlin stated that 400,000,000 barrels of oil had been rendered unrecoverable by the waste of gas. As I recall your statement, you denied that any such loss of oil occurred in the Texas Panhandle fields by the blowing of gas in the air. Have I correctly quoted your testimony this morning?

Mr. PEMBERTON. I think so. The idea that I endeavored to convey was any oil left in the ground there is not a permanent loss, such as the statement reads, "a permanent loss."

Mr. COLE. Well, you did in so many words this morning challenge the statement of Dr. McLaughlin.

Mr. PEMBERTON. Yes; I did—and I do now.

Mr. COLE. Are you personally acquainted with the Panhandle field?

Mr. PEMBERTON. I have been there.

Mr. COLE. Are you an engineer or geologist?

Mr. PEMBERTON. Yes; I am.

Mr. COLE. Have you studied the field to such an extent that you feel you are as familiar with the field as Dr. McLaughlin?

Mr. PEMBERTON. Yes; I am very familiar with the field and at one time I was in charge of drilling some wells down there and I am familiar with the geology there.

Mr. COLE. Now if you are not willing to accept Dr. McLaughlin's statement as to the loss of oil in the Texas Panhandle, I want to read you a statement to the same effect; here it is, page 2238 of our 1934 hearings, by Mr. Stalcoup, vice president of production of the Skelley

Oil Co., a company which you will agree is a big producer in the Panhandle field. Are you familiar with the statement?

Mr. PEMBERTON. I believe I am.

Mr. COLE. Instead of reading it to make it a part of my question you can look at the statement and we will adopt it by reference as part of this question. Does that cause you to change your opinion in any respect?

Mr. PEMBERTON. No, sir; it does not.

Mr. COLE. You see the language to which I refer?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. That testimony was given in 1934, and supports the statement of Dr. McLaughlin in 1939, does it not?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. Mr. J. Howard Marshall has been referred to in some of the questions. You know him, do you?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. He appeared before our committee in 1934 during the hearings in this city, and he is now a resident of this State, is he not?

Mr. PEMBERTON. Yes, sir.

Mr. COLE. Mr. Marshall is recognized as an authority on the subject of conservation of oil and gas.

Mr. PEMBERTON. On the legal side of it, certainly.

Mr. COLE. The legal side of it. I will read from an article by Mr. J. Howard Marshall entitled "Legal History of Conservation of Oil and Gas in California," published in December 1938 by the section of mineral law of the American Bar Association:

Theoretically, the system of allocation has been almost identical. Starting with the monthly figures of the United States Bureau of Mines, forecasting the demand for oil in the State as a whole—

speaking of the State of California exclusively—

this central committee—

your committee—

has allocated the estimated demand among all the various fields and wells within the State. Practically, however, despite valiant efforts on the part of an oil Umpire, the executive officer of the committee, and enumerable subcommittees and field committees, the voluntary system under which the industry has labored has been but a makeshift at best. For the committees have been utterly unable to adhere to any consistent plan or system of proration. Rather they have had constantly to cut and fit their actual allocations to meet an eternal number of individual instances where particular fields and particular operators have either flatly refused to curtail their production at all or have curtailed only to such an extent as their own individual desires have dictated.

Do you agree with that statement of Marshall?

Mr. PEMBERTON. That is a true statement of the conditions at that time; yes, sir. In other words, our voluntary curtailment system through 10 years of experience has improved from time to time, based on the experiences gained from time to time. We tried something and found out what was wrong with it and tried something else to find out what was wrong with it. There was a continual shifting of methods during all that time.

And if I might be permitted I would like to explain as to the inquiry concerning oil in the Panhandle, and the statement of Mr. Miller. Both of those statements refer to recovery from those existing wells there under the conditions under which they are produced. Any oil

that has not been produced is still there in the field and can be flushed out and obtained. The reservoir of oil in that field is in what is called granite wash. Granite wash has probably as high a permeability as any conceivable reservoir that could contain oil.

Mr. COLE. Of course the expense to do that is prohibitive.

Mr. PEMBERTON. I would not say so; no.

Mr. COLE. To recover 100 percent of the capacity of the field.

Mr. PEMBERTON. I do not see that at all.

Mr. COLE. Why don't some of the operators do that?

Mr. PEMBERTON. That would require community operations for the whole field and possibly would not be attempted until they need the oil. Now then, that amount of oil constitutes the same sort of thing as we would have in a field with 500,000,000 barrels of oil not discovered. It is something in the future to get when they want the oil. In Texas they have a superabundance of available oil from existing wells. There can be no question that it certainly would be foolish to attempt secondary methods of recovery under those present conditions. That oil is not a permanent loss at all, the difference being between those existing wells and wells that may be drilled sometime later on to secure that oil. That oil actually constitutes one part of the reserve of the State of Texas, which is not given credit in the estimate of their total reserves. The same condition exists in California in many fields, all fields.

Mr. COLE. Thank you, Mr. Pemberton. Mr. Hogan.

Gentlemen, order, please. Before proceeding with the testimony of Mr. Hogan, I want to read a letter into the record dated January 15, addressed to Hon. William P. Cole, Jr., M. C., chairman of the subcommittee of Interstate and Foreign Commerce Committee, House of Representatives, Hotel Biltmore, Los Angeles, Calif.

MY DEAR COLLEAGUE: In the interests of consumers dependent on petroleum products from California, I must oppose H. R. 7372 and strongly urge defeat of this measure.

On analysis of the proposed legislation—

and I quote—let's have quiet please—

On analysis of the proposed legislation, I am of the opinion that its provisions will lead to monopoly rather than true conservation. Further, I am advised reliably that the oil States are producing petroleum with an efficiency which could hardly be improved upon by a bureaucratic office such as this bill would set up.

I believe in the true conservation of our natural resources, but cannot see my way to support what I believe to be a monopoly measure in the name of a false conservation. I would greatly appreciate your reading aloud this objection into the record at Los Angeles.

With expressions of highest regard and esteem, I am,

Very cordially,

JOHN M. COFFEE,

Member of Congress of the Sixth District of the State of Washington.

STATEMENT OF DANA HOGAN

All right, Mr. Hogan.

Mr. HOGAN. Thank you.

Gentlemen: My name is Dana Hogan. I am an independent oil producer, being president of the Hogan Petroleum Co. I am president of the San Joaquin Valley Oil Producers Association, composed of oil companies producing oil in the San Joaquin Valley. I am a director

of the Independent Petroleum Association of America, the American Petroleum Institute, the Oil Producers Agency of California and the California Oil & Gas Association. I merely state that, not as representing them, because they will be ably represented, one of them before you here and the other three before you in Washington. Except for 2 years' service as a naval officer during the World War, I have been in the oil-producing business continuously since 1912, when I was graduated from the University of Wisconsin, after studying geology and engineering.

In reviewing the testimony submitted to your committee in 1934 and in November 1939, I note that you have had presented to you voluminous statistics and reports on the various phases of the oil-producing industry. I will avoid repetition and burdening you with many statistics, but instead set forth the opinions of independent oil producers regarding the Federal Government and the necessity of control by it of our industry. What figures I am forced to use are in round numbers taken from current Government statistics figured down to the barrel. I will tell you in laymen's language the things they and their friends are thinking of and talking about, which I know will interest you and other Members of Congress as representatives of the people.

My statement will be divided into three parts.

First, showing why oil producers do not want Government control;

Secondly, some of the bad features of H. R. 7372 as it affects the independent oil producer; and,

Thirdly, and most important, since national defense is set forth as a reason for H. R. 7372, a discussion of the national and particularly the naval reserves and how they affect the independent oil producer in the San Joaquin Valley since the principal naval petroleum reserves are located therein.

Last year I served as a member of the fact-finding committee of five, a sort of a grand jury selected by the oil producers of California, which invited all California oil producers to appear before it and tell if they had any complaints against or suggestions to improve our system of voluntary proration and conservation. We spent 4 months in this investigation, which is somewhat similar to your investigation, and held meetings throughout the State. Our recommendations for certain improvements were put into effect on June 1, 1939, and for the last 7 months California's system of voluntary proration and conservation has been as good or better than States having State control. During those 4 months of hearings and study many independent oil producers appeared before us. Not one of those producers or any one of the many others I know has ever expressed himself in favor of the principle of governmental control of our industry. The various reasons for this attitude may be summed up as follows:

(a) They can find no one who can convince them that a place was set aside in the framework of our Government for governmental control and regulation of private industry and enterprise other than police power. An historical study of the Federal constitutional conventions of the various States of the Union discloses no intention of their framers to have Federal or State Governments be given complete power to regulate to the smallest detail the ordinary operations of industry. Furthermore, they all consider Federal control of industry as invasion of States' rights.

(b) Since their experience under the N. R. A. they know that Government control fosters monopoly. It makes the large fellow stronger and the small fellow weaker. One of the first acts of the Petroleum Administrative Board, composed of five men who had never had a day's experience in the oil industry—and I do not speak with prejudice, because two of them are very good personal friends of mine—was to drastically reduce by curtailing production the income of the oil producer. This was done to bring the national production below the consumptive demand in order to reduce what were considered excessive inventories. This was sound economics in theory if the inventories had been held proportionately by all oil producers but instead the inventories were concentrated in the hands of the large integrated companies. What happened was that while the major companies turned their inventories into cash the independent's gross income was reduced while his expenses remained the same. Thus he was unable to build up reserves to drill additional wells. If an oil producer does not expand nature necessarily contracts him. During the N. R. A. the major companies acquired strong cash positions which enabled them to take on promising acreage entailing drilling expenditures while practically all the independents had to sit by watching the N. R. A. procession on its way toward forming monopoly by increasing the large companies' positions in the oil-producing industry while the independents lost ground. And the price to the consumer was forgotten. This experience is too fresh in the minds of the independent oil producer to want any more of Government regimenting industry.

After the Petroleum Administrative Board had fixed up the inventories they started to regulate drilling. A man had to get a permit from the Government to drill a well in any field discovered after January 1, 1933, a date some 6 months before the N. R. A. became a law. If he did not get his permit he was told he could not market the oil from his unpermitted well, no matter what his lease or financial obligations were, how many men he would have to discharge, how badly his crude-oil purchaser needed the oil, or how efficient an operator he was.

I can state a very bitter incident of my own with the Petroleum Administrative Board, which is well known in the oil industry here, if you wanted me to.

Mr. COLE. You say you could cite an unpleasant incident?

Mr. HOGAN. Very. Would you like to have me cite it for the record?

Mr. COLE. So long as you have referred to it, you might as well give it to us.

Mr. HOGAN. I will, quickly. I drilled to 5,865 feet in 1933 the first commercial oil well in the Mountain View field, located some 8 miles southeast of Bakersfield, Calif. It is in a good-sized field, 10 miles long, and it has produced to date about 35 million barrels of oil. It was the forerunner of the deep-oil-field discoveries and drilling activity in the San Joaquin Valley in the last few years. I had acquired a property right across the road from my discovery well. My obligation was to drill a well, and I went to the federalized central committee, asking for a drilling permit. The permit was refused, as they said it was an unnecessary well because it did not fall in line with the Government's proposed unit scheme, although it was an offset well. Accordingly I was advised by one of the members of the Petroleum Adminis-

trative Board to go to Washington for relief. I flew to Washington. The Board had all the data regarding the case there in Washington. I tried to see the chairman of the Petroleum Administrative Board.

Twice I went to see him. He was too busy to see me. I finally was seen by the vice chairman of the Petroleum Administrative Board, who is now the attorney for the National Labor Relations Board, and after some discussion, he stated to me, "Mr. Hogan, why do you not let your landlord sue you?" [Laughter.] I said, "Well, that might be all right, but what if I lose the suit?" "Well," he said, "the Government will help you to fight this suit." I said, "Well, that is fine; I appreciate that, but if I lose the suit and lose the property and still had the obligation with the company from whom I bought the property, will the government reimburse me?" He said, "Oh, no; Mr. Hogan, we cannot do that. You haven't the right social viewpoint about this." I said, "I did not come here to talk about social viewpoints, I came here to talk about protecting my property and getting enough money to meet my pay roll"—I did not want to listen to any of that damned nonsense. He said, "I don't want anybody talking to me like that in my office." I said, "Your office?" I said, "This office belongs to me and 130 million other Americans," and I left him. I went back and I drilled the well and everything turned out all right.

The P. A. B. then regulated refineries, telling them how much oil they could refine and how much gasoline they could market. They parceled out the markets. They even decided to regulate exports and imports of oil which I always thought was a function of Congress or the Tariff Commission. They tried to regulate the entire industry down to its smallest detail. Some, particularly the large fellows, some of whom we suspect may secretly favor H. R. 7372, proposed under the N. R. A. and were willing to give up their birthright of independence for assured profits, while independents, if they did not assert their independence, lost their shirts or were left on the sidelines. The P. A. B. paid no attention to the fact that they were numbering the independent's days.

They did not offer a plan to subsidize the curtailed independent by giving him parity payments like the curtailing farmers. No; it appeared that they wanted the independent producer to drop out of the picture so that with only a few large oil companies left it would be an easy task for the Government to take them over. This was so aptly expressed by a high Government official when he told some California oilmen last spring in Washington that there were too many individual oil producers and they should be eliminated. You know it is bad politically to pick on the little fellows. However, they can be gotten rid of by an economic freeze-out brought about by severe governmental regulation. With the independents out of the picture, the big fellow would be easy pickings as it is always successful politics to stir up the people against large corporations. The large companies know this, hence the future of the oil industry lies with the independent. The large companies need us independents. No longer are we the step-children.

(c) A persistent and deep-rooted conviction that small salaried governmental officials are not fitted to run an industry. If they were capable they would be in industry itself. There are exceptional scientific career men that we oilmen respect but they are few and

far between. Many bureaucrats change their viewpoints and attitude with the change of administration so that one cannot depend on them over a long period. Then, too, it is discouraging for men from the oil fields to go back to Washington and have to deal with these young "hot dog" lawyers, some one or two generations removed from Russia but still imbued with current Russian ideas. They do not speak our language. They have a political ideology and philosophy foreign to ours. No oil producer has any confidence in the ability of the present Department of the Interior, from the head on down, to manage efficiently his business or the business of any other oil producer. The Navy Department evidently feels the same way about the Interior Department. I certainly know of no one in the Interior Department that I would want to put on my pay roll except some of the scientific career men.

(d) Under Government control one could not plan his business future ahead with confidence for over 4 years for fear of change of administration with a new Secretary of the Interior, with a change of policy, and new heads of departments. You know in your hearts that politics, even if you legislated against it, would play a big role in the Government control of this rich gigantic industry employing over a million people. What a feast it would be for the bureaucrats. Nothing is so galling as to have to knuckle down to some public servant who acquires temporary power and orders you about to your detriment if you are on the wrong side of the fence politically.

(e) Although petroleum geologists were practically nonexistent 40 years ago Secretary Ickes reversed the findings of three previous Secretaries of the Interior and declared void the title to a school section of desert ground in the San Joaquin Valley on the grounds that it was known oil land many decades ago and the fact was concealed from the Government. It may seem strange but many landowners and lessees in the San Joaquin Valley are wondering if he may try to cancel the patent to every other piece of ground located therein which was patented through homesteading and which is now oil bearing, by saying that the homesteader knew the land was oil-bearing but concealed the fact when applying for a patent. We understand the Government is now looking into the titles of a large landowner. Is this the opening wedge to voiding titles to patented oil-bearing land and reinvesting it in the Government somewhat similar to the Mexican methods? From the lenient way the present administration has treated the Mexican government following their confiscation of American-owned oil-producing properties, many think it is in sympathy with the Mexican methods and ideology. This makes us uncertain of our Government.

(f) After the Department of the Interior encouraged continuance by oil marketers of N. R. A. practices and methods after its abolition, the Department of Injustice—Department of Justice indicted the oil marketers, as witness the Madison trial and the pending of Los Angeles trial. Talk about the Finnish traps the Russians walked into, they were nothing compared to the government trap the oil marketers walked into by placing their confidence in the Department of the Interior. Do you wonder that no oil man trusts the present Department of the Interior?

(g) Despite the large inventories of heavy fuel and crude oil in California and the strict curtailment of the small heavy oil producer

in California to a bare living wage, our State Department makes a trade treaty with Venezuela reducing the excise tax on the cheaply produced and lightly taxed Venezuelan crude and fuel oil from 21 cents a barrel to 10½ cents a barrel and about doubling the amount of allowable oil imports. This was another deathly blow to the producer of heavy crude oil in the San Joaquin Valley but no attention was paid by the State Department to our protests. The only companies invited by the State Department to confer on this matter were the Standard Oil of New Jersey and the Gulf Oil Co. who control the production and importation into the United States of nearly all of the crude and fuel oil being imported. The independents made a strong fight for this 21-cent excise tax, which as you know is not in the tariff bill but has been enacted every 2 years by Congress as part of the revenue bill. We Californians had looked forward to being able to recapture our eastern seaboard fuel oil markets when the demand for fuel oil on the east coast recently grew larger and the price per barrel was increased to a point where it would pay to ship oil east and reduce our heavy inventories. Then came the announcement by Secretary Hull, illegally made some think, that he had negotiated this trade treaty with Venezuela and had cut the oil excise import tax in two. Since we have a treaty with Mexico which has a "favoured-nation clause," this means that the reduction to 10½ cents per barrel will apply to the oil the Mexican Government has stolen from American companies. Do you wonder why the independent out here has no confidence in the State Department which thinks more of the goodwill of Venezuela and Mexico than it does of its own citizens?

(h) [Laughter.]

Mr. COLE. Mr. Hogan, it just occurred to me your alphabet rivals that of the New Deal.

Mr. HOGAN. We are very proud of the accomplishments of our industry. Our technique is used practically every place in the world. Where it is not used waste appears, as witness Russia who with her tremendous reserves seems to be unable to increase her production in the past few years despite her heavy drilling campaign. Her production with no curtailment is now only about five-sixths that of California's strictly curtailed production.

We have more confidence in ourselves than in the Government to protect the consuming public because we are a highly competitive business which has kept the price of its products down to the consumer while improving its quality.

We think we have done a wonderful job here in California with our voluntary curtailment system for in the face of mounting potentials caused by a continuous "bringing in" of big wells our producers have voluntarily and effectively curtailed our production and eliminated all waste as is humanly possible. The last 8 months has witnessed a substantial reduction of inventories here after a normal addition during the first 4 winter months. This is conclusive proof that the California oil producers have solved the conservation problem for the benefit of themselves and the consuming public, fairly and squarely without politics and corruption.

All of the foregoing explains why a resolution opposing H. R. 7372 was passed unanimously by the San Joaquin Valley Oil Producers Association at its annual dinner meeting in Bakersfield, Calif., December 6, which was attended by 185 independent oil producers.

If I might present this for the record, or do you care to have me read it?

Mr. COLE. That is the same resolution you sent to me with the letter requesting it be made a part of the proceedings?

Mr. HOGAN. Yes.

Mr. COLE. We will put it in at this point.

RESOLUTION REGARDING PROPOSED H. R. 7372 FEDERAL OIL CONTROL BILL

Whereas, the San Joaquin Valley Oil Producers Association believes that in order to maintain the present form of government and world leadership of the United States it is necessary to continue its system of free initiative and enterprise, and

Whereas, the American Petroleum industry has grown to be the second largest industry in the United States without any form of governmental help, financial or otherwise, and

Whereas, the American petroleum industry within the past decade has become united in the belief that conservation methods and plans are of paramount importance not only to the industry and the individual producer but to the country as a whole and following this belief has eliminated as far as humanly possible all wasteful methods of producing petroleum and gas, and

Whereas, we believe that the great strides made in research and improvement of technique in producing, transporting, refining and marketing of petroleum and gas would not have been possible under an un-American system of Federal control of our industry which would stifle and discourage individual enterprise and initiative, and

Whereas, a bill has been introduced in the United States House of Representatives, No. 7372, which would place under a new Federal bureau absolute control to the smallest detail of the business of every petroleum and gas producer in the United States: Now, therefore, be it

Resolved, That the San Joaquin Valley Oil Producers Association declares its opposition to the enactment by Congress of House Bill No. 7372 and that such opposition be made known to the Members of Congress who are urged to vote against this bill.

BAKERSFIELD, CALIF., December 6, 1939.

I will now take up by paragraph some of the bad features of the proposed H. R. 7372 as they affect the independent oil producer.

Section 2 (a): This declaration of policy states an untruth in that it says Congress, which means the majority of Senators and Representatives, if this bill is passed, has found wasteful methods and practices in the production of oil. There may be waste thereafter according to the definition of waste set forth in section 6 (b) but those definitions are not necessarily true because some "hot dog" has thrown Mr. Webster's definition out the window and has redefined waste to suit his case. If you only knew how anxious a small producer is to conserve and sell every foot of gas and every barrel of oil he can and to recover all the oil and gas out of his wells that is humanly possible, you as representatives of the people would never subscribe to this unequivocal assertion of waste.

In Section 6 (b): (1) the regulation for the spacing and location of wells necessarily would have to be empirical with no exceptions granted. Any experienced producer and his engineers and geologists know this provision could defeat its purpose by possibly causing waste by leaving oil in the ground due to improper spacing. No two fields in California are alike and cannot be treated alike. Before an independent oil producer acquires a property he figures out its economic value by determining how to get the most oil out of the ground in the cheapest and most efficient way at the same time using the best and most successful engineering practices and conforming to existing voluntary or State regulations, unit plans, etc. concerning that pool or

field. Voluntary unit plans were in operation long before Mr. Ickes ever heard of them. To have someone in far off Washington tell an operator out here how to drill and operate his property would be impractical and most of all productive perhaps of physical and economic waste.

In section 6 (b) (6), to promulgate rules to prevent the escape of crude oil from a productive formation through drainage, seepage, or uncontrolled migration would also be absurd. It is the unrealizable dream of the oil producer to be able to prevent this. If such a rule or regulation were made I can foresee a lawsuit on every producing property in the United States. An independent with a margin of profit of a few cents a barrel could not stand the cost of litigation and possible payment of damages.

Section 6 (b) (9) concerns reservoir energy. This would be the cause of endless arguments between oil producers and Government officials. The independent who cannot afford an expensive staff of engineers and geologists would naturally lose out against the large and expensive staff of Government men.

Section 6 (c) (2). In California where the oil sands are lenticular and not consistent in character and are not blanket sands of fairly even thickness and composition the same yardstick cannot be used for any two fields. If any independent were operating in several fields he would have to hire an additional engineer just to be constantly sitting in with the Government engineers.

Section 7 would give the Government the right to disapprove of a voluntary agreement made between operators after many weeks of hard work, argument, study, and intimate knowledge of the local conditions. This agreement might contain special provisions to protect the independents against the large companies in that field and later the large staffs of engineers maintained by large companies might convince the Commissioner of its undesirability, who would then outlaw by an order the voluntary agreement. Most every agreement entered into voluntarily is a happier one than those forced upon you.

Section 10 indicates that this bill is not confined to oil producing but goes into refining, storage, transmission, and distribution of oil products. This makes the independent suspicious of the purpose of the officials who wrote or approved this bill. Is it that under the plea or excuse of conservation they want to acquire control of all phases of the industry?

Section 12 (c) could mean that while an independent was on a vacation trip or perhaps back in Washington groveling before some autocratic public servant he would be liable for some wasteful act his foreman, in carrying out his orders, might perform unaware of some new regulation published in the Federal Register.

Section 13 (b). This would mean that the Commissioner could bring an action against you before you ever turned a spade. If improperly used this power could prevent anyone from engaging in well drilling or producing even to protect a property, if the Commissioner wanted to keep you out of the oil business.

Section 15 (e). If an independent won his appeal in court against the Commissioner's order or regulation but the Commissioner by order has closed down the appellant's oil wells pending the outcome of the appeal, who is going to recompense him for his loss of income, fixed

expenses, possible damage to the wells being shut in, and the loss of oil by drainage of offsetting wells? Should not the Government reimburse him if the courts say the Commissioner was wrong?

Section 17 (a) states that the Commissioner does not have to keep any records or provide for the inspection and examination of such records if kept. What chance has a little fellow against a one-sided shell game like that? [Laughter.]

Section 17 (c) states that regulations only have to be published in the Federal Register. What oil producer knows about the Federal Register? How can an independent run back to Washington ever so often to look into the Federal Register for new regulations? He would have to hire someone in Washington to examine the Register every day or else subscribe to it, receiving it perhaps several months after the regulations came out.

I would now like to discuss the question of the necessity of H. R. 7372 for national defense and the effect of the naval reserves located in the San Joaquin Valley upon the future of the independent oil producer in that area. I want to preface my remarks by stating that I am and have been for the past few years a director of the Los Angeles Chamber of Commerce and chairman of its naval affairs committee. In that capacity it has been my duty and my privilege to perform such services to promote the efficiency of the Navy and the welfare of its personnel as the Navy may request of us. I have also served in the past as a member of the national naval affairs committee, the national aeronautics committee, and the national foreign relations committee of the American Legion. I am a pro-navy man but am going to set forth the views of a person who understands and is sympathetic to both sides of the picture.

As you know, Naval Petroleum Reserve No. 1, comprising the Elk Hills large anticlinal dome is owned almost entirely by the Federal Government except for some land in the center of same which has not been highly productive of oil but of gas, and the development at the east end of the structure from which resulted in considerable production of oil. However, the production to date in these two areas has come from the formations of Pliocene age. The lower formations of Miocene and Eocene ages, in which production of major proportions have been discovered in the past few years at great depths to the north, northeast, east, and southeast of Elk Hills, have not as yet been explored. They will undoubtedly be productive under the Elk Hills.

The consensus of best geological opinion is that the untested Miocene and Eocene sands in the Elk Hills structure are not being affected by the production from those formations in the fields which surround Elk Hills, but are protected by nature. Hence, to have a perfect reserve the Navy Department, for the price of a battleship, could perhaps buy up all of the land held by others in the Elk Hills. It may be that it could be done without purchase if Secretary Ickes remains in office much longer and issues findings that the privately owned oil lands were fraudulently patented and obtained. The estimates of the untapped reserves in Elk Hills, which include undeveloped Pliocene formations as well as the Miocene and Eocene range from 400 million to a billion barrels. I am inclined toward the latter figure. Since it is a safe prediction to say that the oil from the Miocene and Eocene will be high gravity one might say that a barrel of high gravity oil sold in the open market would buy 2 barrels of fuel oil. Therefore

you might say that in Naval Reserve No. 1 there is a potential reserve of 2 billion barrels of fuel oil, which at the present rate of Navy consumption would supply the Navy with fuel oil for over 200 years. We understand that an appropriation is to be made for the Navy to form a drilling organization to test out the extent of the producing formations of Pliocene, Miocene, and Eocene ages and also to determine the boundaries of the producing oil sands. A staff of petroleum technologists and consulting geologists have been commissioned as lieutenant commanders and lieutenants in the Naval Reserve, and have been working on this problem for several years. Also, a skeleton drilling organization has been formed. This will mark the advent of the Navy into the drilling and producing business.

Naval Petroleum Reserve No. 2, which comprises the Buena Vista Hills domal anticline, is divided about half way between private ownership and Government ownership. However, the Government-owned lands are operated under lease by private concerns.

It is a well known fact that the capable operators in that field have cooperated in every respect with the Federal Government. It is perhaps best to have the present arrangement continue although the Government could trade some of its mineral ownerships in No. 2 for private lands in Reserve No. 1. There is no reason why the Navy could not keep their royalty money in a separate fund for emergencies instead of having to turn it into the Treasury's general fund and then getting it appropriated out again. Despite its deep sands possibilities it is difficult to establish what this reserve means to the Navy for it is not a true reserve. However, the development of deeper zones should be held back for future use as well as Naval Reserve No. 1.

There has been one well drilled on the Miocene formations in the Buena Vista Hills, so I am informed, and they found the sands to contain oil. The independent producer hopes such will be the case as there is no need now for the light gravity oil and if it were developed and put on the market in the near future it would seriously adversely affect the San Joaquin Valley heavy oil producers by crowding their oil out of the picture and disrupting the market, thereby causing tremendous economic and no doubt physical waste. No oil should be taken out of the naval petroleum reserves or naval oil shales reserves except as is absolutely physically necessary.

In California alone we have today about 154,000,000 barrels of oil products in tanks and reservoirs of which 52 percent or 80,000,000 barrels is fuel oil. The entire Navy and Army present west coast needs are less than 9,000,000 barrels a year of which 7,000,000 barrels is fuel oil. Under our strict curtailment system California can produce the Navy's annual needs in 15 days and the entire United States can do likewise in 2 days and 10 hours. Unrestricted, California could produce the Navy's annual needs in 5 days and the entire United States could do it in 20 hours.

There is no need to further emphasize the tremendous reserves of crude petroleum and oil shales in sight, except to say that at the present rate of Navy consumption, which should not increase tremendously in time of war as practically every one of our naval vessels, except some old destroyers, are in commission afloat right now and as the consumption rate in time of peace will perhaps remain fairly static due to improvements in machinery, consumptive methods, and so forth, there is enough oil—according to governmental figures—to

take care of the Navy alone for 10,900 years. If you apply the governmental figure of $1\frac{1}{4}$ barrels of oil per ton of coal to our 3,200,000,000,000 tons of coal we would have an additional 400,000 years of naval supplies. As the Navy consumption is only seven-tenths of 1 percent of the national consumption you can readily see that even if the rest of the country continued to produce 99.3 percent of the oil produced there would still be enough for the country and Navy for 110 years just from our known reserves of crude petroleum and oil shales while added to this the possible oil from our coal of 4,028 additional years, would make a total of 4,128 years, I do not think we should concern ourselves with conditions 4,128 years from now. [Laughter.]

In a few years more of technical advance the cost of gasoline from coal should be down to 12 cents per gallon. Compare this with the 20 cents a gallon cost to the public of gasoline made from crude oil 20 years ago. I have visited the oil mines at Pechelbron in Alsace-Lorraine, France, and at Wietze, near Hanover, northwestern Germany. They recover about 2 barrels of oil to a ton of oil sand mined or about one-third of volume. This is more profitable than coal mining over there. I can take you to a well five blocks from this hotel where E. L. Doheny and C. A. Canfield in 1892 discovered the Los Angeles City oil field by digging a shaft 180 feet deep. The eminent Dr. Bergius, who invented the hydrogenation process of making oil out of coal, in 1933 showed me in operation at Heidelberg, Germany, his plant which makes gasoline out of sawdust and ground up slabs of wood. It has been operating successfully for 6 years.

I want to impress upon you that an early exhaustion of our reserves is not imminent but rather the reverse and that the argument of governmental control of the oil industry for national defense is weak and should carry no weight in a thoughtful Congressman's mind. Furthermore I do not see the need for any more naval petroleum and oil shale reserves so long as we have an efficient oil industry ready to supply its needs quickly and cheaply from its large inventories and the above mentioned tremendous known reserves.

Why single out the oil industry from the other great industries which are just as necessary for national defense?

If the navy is still unconvinced about an imminent shortage, which if it ever does come in the next 110 to 4,128 years, it will come gradually so that everyone will be prepared, why not have Congress appropriate the equivalent cost of a couple of battleships and buy the entire output of an ideal oilfield, paying partly in advance and arranging to take it out only as the Navy needs it but leaving the operation of the property in private hands so as not to depart from the principle of Government not being in industry. Why should not some of the Government money come back to the oil producer since the oil industry pays annually over \$1,000,000,000 in taxes.

The Navy does not like to see California oil going to Japan. It has been going there for the last 50 years and a certain economy has been built up in California on its oriental oil trade. You no doubt know that California supplies less than half of the petroleum products imported into Japan. As she can get it elsewhere an embargo on oil to Japan would not wreck her but would wreck the California oil industry as our oriental trade takes about one-eighth of our products. If the income of the independent oil producer is further reduced by

the Government cutting off an important part of our market they should give the oil producer a parity payment to keep his net income up to the pre-embargo level. Since this would be a national defense problem the entire country should contribute just as the residents of New York City and other cities contribute to the parity payments to the California cotton growers, of which I am one. An embargo will certainly not help our relations with Japan and might force her into drastic action to obtain oil fields. This might start a Pacific Ocean war which would certainly mean our participation in same.

I know of no independent who is not in favor of conservation and using the best known methods to produce. What they do object to is conservation being forced upon them by commissions and bureaucracies. They object to Government by commission but not to Government by statute.

In conclusion I would say that the good old days for quick payouts for the independent oil producer are gone. The oil producers are a hardy and adventurous lot and they are doing voluntarily at financial sacrifices what the Government pays the farmer to do. The Government likewise increases the price of gold and silver so that the mining men will produce to their limit while the oilman seems to be picked on by the Government.

With the threat of a Presidential embargo on oil to Japan coupled with the body blow Secretary Hull delivered to the small producer of heavy oil in the San Joaquin Valley by the Venezuelan Trade Agreement, the future for the California independent oil producer is gloomy. If in addition a Federal oil control bill were enacted it would be, in my opinion, the finishing blow. Thank you. [Applause.]

Mr. COLE. Mr. Hogan, we are glad to hear some discussion of H. R. 7372. The committee welcomes criticisms of the provisions of the bill.

When did you become a director of the American Petroleum Institute?

Mr. HOGAN. In 1938.

Mr. COLE. Were you a member of the Institute in 1934?

Mr. HOGAN. Well, I would have to look that up from my records. I don't know whether I was or not at that time.

Mr. COLE. You recall that the American Petroleum Institute, of which you are now a director, by decisive vote in 1934, 5 years ago, tried to persuade this committee to recommend Federal control to a considerable extent, do you not?

Mr. HOGAN. No, I do not. I don't recall that.

Mr. COLE. You do know that they very strenuously advocated an interstate compact between the oil-producing States?

Mr. HOGAN. That matter has not come up since I have been a director, has not been discussed.

Mr. COLE. Do you favor the interstate compact theory?

Mr. HOGAN. I think it is a very worthy thing.

Mr. COLE. That is, if the industry cannot meet the problem voluntarily or otherwise within the State, rather than have the Federal Government you would prefer the States getting together in the way the Constitution provides?

Mr. HOGAN. I do.

Mr. COLE. This committee gave considerable encouragement to that being done in 1934. We were all glad to see shortly after that a

compact between the major producing States, but California did not participate and has not seen fit to join the compact up to this time. Do you think that is the proper attitude for this State to maintain?

Mr. HOGAN. I do not.

Mr. COLE. Have you done anything to try to bring about the participation of California along with Texas, Oklahoma, Mexico, Kansas, Michigan, and other producing States trying to solve their problems with the approval of Congress the way the Constitution provides? Have you done anything about that?

Mr. HOGAN. I have not. I once spoke to ex-Governor Merriam about the matter. He asked me one time and I said, "I think that California should participate in that interstate oil contract, but in order for it to do that, a resolution would have to be enacted by the State legislature and signed by the Governor."

Mr. COLE. That is correct. Do you feel that there is any need at this time, Mr. Hogan, for additional legislation in the State of California on the subject?

Mr. HOGAN. If there were a need, which I, at the present time, do not think that there is, because of our last 7 months' performance here, but if our voluntary system should break down, the way I think now, I would give my support to the enactment of a statute or an amendment to the Gas Act, and that automatically would take care of petroleum, whereby we would have regulation by statute so that would be possible—well, to take a concrete instance: Across the line from the Cole Petroleum Co. is the Hogan Petroleum Co., and supposing the Cole Petroleum Co. would be guilty of wasteful production practices, I could complain to the director of resources who would bring suit against you for wastefulness, wasteful methods under the act. In other words, a statute whereby any producer, in order to protect his property would have the right to ask for a complaint to be issued against the man who was injuring his property.

Mr. COLE. Do you think it would be a good idea for the State government to have legislation of the type you have outlined?

Mr. HOGAN. I do not think it is necessary to put it on the books at this time because it might call attention to the fact that our wounds are kind of fresh from the last election.

Mr. COLE. You mean the Atkinson bill?

Mr. HOGAN. Yes.

Mr. COLE. You expressed an opinion as to the Atkinson bill yourself, did you not?

Mr. HOGAN. Oh, yes, indeed.

Mr. COLE. Were you ever for it?

Mr. HOGAN. No.

Mr. COLE. Not at any time?

Mr. HOGAN. Never.

Mr. COLE. While it was in the legislature, before it was finally approved, did you express any opinion at that time on the bill?

Mr. HOGAN. Yes, sir, I sent a telegram to the oil industry's committee and I wrote a letter to them, which I had Assemblyman Rodney Turner, who is here today, read before the committee.

Mr. COLE. What position did you take then as to the need for State legislation?

Mr. HOGAN. I didn't see any need for it, and I was opposed to the principle.

Mr. COLE. Your principal fear seems to be, as far as the Federal Government is concerned, of those who might administer the law?

Mr. HOGAN. That is it.

Mr. COLE. I want to assure you, as one member of this committee, that we will see to it to as full extent as possible that the administration of the act is not in the hands of governmental employees of the type you have described here today, for such is just as obnoxious to me as it is to you.

Is the provision of this bill for voluntary agreements any different from the provision in the bill under which your fruit growers operate?

Mr. HOGAN. I do not know except by hearsay. I think there is a pro-rate bill for certain kinds of agriculture, but that is hearsay on my part, I do not know the detail of it.

Mr. COLE. I think that is all I have to ask.

Mr. PEARSON. May I ask a question?

Mr. COLE. Yes, Mr. Pearson.

Mr. PEARSON. Mr. Hogan, in view of the statement that you have made in regard to different men connected with our Government who are absent, I cannot fail to express the opinion that I am glad that this committee is present instead of absent. You complained, Mr. Hogan, about the treatment accorded individual citizens in this country at the hands of men that you have termed "hot dog lawyers," a generation or two removed from Russia, but still having Russian sentiments.

I am wondering if you, as a producer in the State of California, appreciate the fact that California, being the second largest oil producing State in the country, by virtue of the attitude of the oil industry in this State in refusing State control and opposing Federal control, and standing passive as to State compacts, realize that that is the only motivating cause today for placing your industry under a bureaucracy in this Nation?

Mr. HOGAN. I understand that.

Mr. PEARSON. You appreciate that?

Mr. HOGAN. Yes.

Mr. PEARSON. But in the face of that and in the face of that knowledge, you have opposed every control bill since 1915 up to this time? Did you oppose the Sharkey bill in 1931?

Mr. HOGAN. Yes.

Mr. PEARSON. And the complaint, the principal complaint, which has been advanced here against the Atkinson bill, namely, that you would have an appointive commission which was so distasteful in the industry; in the Sharkey bill there was a commission elected by the industry itself, and the industry fought and defeated that bill, didn't they?

Mr. HOGAN. I must confess that in 1931 I happened to be abroad.

Mr. PEARSON. Well, the industry as a whole; I am not speaking of you personally.

Mr. HOGAN. Yes.

Mr. PEARSON. They fought and defeated that bill, didn't they?

Mr. HOGAN. Yes.

Mr. PEARSON. And that bill had in it a commission which was to be selected by the industry itself in controlling the oil industry, but they did not want that?

Mr. HOGAN. Yes.

Mr. PEARSON. Your State legislature moved to cooperate with Texas, Oklahoma, Kansas, and every other oil-producing State in the country so as to regulate the industry from a national standpoint. You refused to do that, your legislature refused, hasn't it?

Mr. HOGAN. Correct.

Mr. PEARSON. In other words, the oil industry of California, as expressed by you a moment ago, has no confidence in anybody except the industry itself; didn't you say that a moment ago?

Mr. HOGAN. Yes, sir; so far as the regulating of the oil industry itself is concerned, yes.

Mr. PEARSON. I believe you said too that you did not know of a single instance or a single producer in California that was engaging in wasteful practices; didn't you say that?

Mr. HOGAN. I think I used the words "humanly possible."

Mr. PEARSON. Well, there has been a great deal said in these hearings about the Montebello field, everybody seems to be inclined to wait for somebody else to tell about it, but I want to ask you some questions about it. The records show that in the Montebello field in 1939 there was a wastage of gas to the extent there was 61.3 percent of all the gas produced in that field, and proceeding under the act which you have on your statute books of 1915 an injunction was obtained against the operators of that field on the ground it constituted waste and after the injunction was granted, between May 1939, and December 1939, the actual waste doubled, and the gas was being wasted at the rate of 1,427,000 cubic feet, more than double the quantity which was being wasted in May of 1939, when the injunction was obtained. Now, I want to know from you if you think that shows any cooperation on the part of the operators of that field in complying with and carrying out the provisions of what your oil umpire says is an oil conservation statute.

Mr. HOGAN. Not knowing the conditions there, but answering it from a general viewpoint, I would say that since there was an injunction issued by the court covering that field, that it was up to the court to determine whether there was the waste that appears according to the figures, to have gone on. What months were those in, the summer months?

Mr. PEARSON. In May 1939, the wastage was first discovered.

Mr. HOGAN. Of course, that is a pretty warm month.

Mr. PEARSON. The oil industry of California, Mr. Hogan, treats natural gas from the standpoint of its value as a fuel rather than from the standpoint of its value as an underground energy, doesn't it?

Mr. HOGAN. Both.

Mr. PEARSON. Isn't it true every summer when your gas demand decreases, that you have an increase in the wastage of your gas?

Mr. HOGAN. I think that is one of the things that is inherent to the entire industry all over the United States and all over the world.

Mr. PEARSON. That may be your opinion, but the facts and the figures don't bear it out in any other field except in the State of California, and if you examine the records you will find it is a situation peculiar to the industry of this State and a practice not indulged in in any other oil-producing State in the country and it is those conditions and those practices, the destruction of the best explosive energy

known to the oil industry, the wastage of it by the oil industry in the State of California that has brought so vividly to the mind and attention of Congress the necessity of a Federal control over the industry.

Mr. HOGAN. How could Federal control improve that situation at Montebello, when those wells come in with high gas ratios? I do not know how it would be humanly possible to do it.

Mr. PEARSON. I am not prepared to say how it might improve it. I am prepared to say unless something is done either by your State authorities or some other arrangement by State compacts, then there is but one recourse left, and that is control of the oil industry from a national standpoint, and not looking at it from the selfish standpoint of the oil industry of one State alone, which seems to be your attitude.

Mr. HOGAN. Is our record any worse than Texas' record is for gas blowing?

Mr. PEARSON. Yes; according to the records. Now I want to move on to your statement about the Secretary of State of this country, and your statement that you have no confidence in the State Department because of Mr. Hull having bartered away the interest of the people of this country to the advantage of others. I do not care to ask you any questions about that at all. But as a native Tennessean, Mr. Hogan, and as a personal friend and an acquaintance of the Secretary of State of the United States I want to say to you that the argument which you make in that respect so far as I am concerned as an individual member of this committee, speaking my own sentiments only, that argument falls on deaf ears, and in barren ground. The Secretary of State of this Nation knows more about the international trade of this country than you and I will know if we lived until the supplies of oil and gas that you mentioned as being sufficient for this country are exhausted, I believe you said 4,099 years.

I want you to know, sir, speaking as one Member of Congress and a member of this committee, that I do not share the opinion that Mr. Hull has ever bartered away the interests of any person or any industry of this country for the benefit of others. When one voices such an opinion he does not know the man or his policies or his philosophies. And it is only the voice of a selfish industry. It is just another case of whose baby has the measles and unless all of us who live in this country and expect to enjoy the benefits which come from international trades which we enjoy, make up our minds that we have to give and take, and if we are not ready to make up our minds to satisfy ourselves in trying to be self-sustaining, and a self-contained nation, erecting barriers and walls, it will absolutely shut us off from the commerce of the world.

I think in negotiating the Venezuelan Treaty, and other treaties which the Department of State has sought to negotiate action was taken in the very best of faith, and with the one motivating thought and desire of helping build up the commerce of this country both from an agricultural and an industrial standpoint. I simply wanted to make that statement so that you may know that your lack of confidence in the State Department, and your lack of confidence in Mr. Hull, can't in one slight degree change my confidence in him or change my view with reference to his philosophy.

So far as the sale of oil and fuel to Japan is concerned, it is something that is attracting the attention of Congress to the necessity of some

sort of legislation which will prevent one of the greatest national resources which we have and one of the greatest that this State enjoys from being dissipated or being sold to those who are using it at least for the present for unlawful or at least unreasonable purposes.

Mr. COLE. Mr. Pearson, will you suspend for a moment?

Mr. PEARSON. I am through; yes.

Mr. COLE. Mr. Hogan, you may proceed.

Mr. HOGAN. I think I will state for the record I agree with Congressman Pearson from Tennessee. I made these remarks knowing advisedly that Mr. Pearson was from Tennessee. I do not believe that anybody has any doubt about the high purpose and lofty views of Mr. Hull, but we think that his viewpoint regarding the Venezuelan oil is wrong.

Mr. PEARSON. That is different from saying that you have lack of confidence in the State Department because they permitted our——

Mr. HOGAN. I will say this, because they never gave us a chance to appear and have a conference about it. And you will find this a matter of record, and the Independent Petroleum Association of America, Mr. Brown, will verify this, that the only people that were consulted by the State Department were the two largest importers and producers of Venezuelan crude. Now, why didn't we producers have some part in the picture? The potential of heavy oil in this State is 415,000 barrels a day; our heavy-oil allotment is 165,000 barrels a day. You will hear from somebody else who is a producer in the field out here which can produce over 125,000 barrels a day, and of heavy oil similar to Venezuelan crude I don't think they market over 10 percent of that figure, and it is right within 15 miles of seaboard.

Mr. COLE. About 11 percent of your production is going to Japan?

Mr. HOGAN. It is not as much in 1939 as 1938. I think it will run about 12 percent.

Mr. COLE. What price is it being sold at?

Mr. HOGAN. I couldn't tell you. This is hearsay, but I have heard they have to pay cash in advance.

Mr. COLE. That is something then.

Mr. HOGAN. Yes.

Mr. COLE. Isn't it true the aviation gas that is being sold to Russia is being sold at 10 cents a gallon?

Mr. HOGAN. I couldn't answer that because, to tell you the truth, I never looked it up.

Mr. COLE. Isn't it common knowledge that all the oil that is being sold to Japan and Russia is being sold far below the market price here in Los Angeles?

Mr. HOGAN. I hope not. I don't know. I hope not. If it is being done I don't think it is fair to us independent producers or to the consuming public. I would like to put that in the record that if any oil company is selling gasoline by contract cheaper to the Russians or the Japanese or anyone than they are to the American people, I consider it reprehensible.

Mr. COLE. I am glad to share that thought with you.

Mr. CROSSER. I want to ask a question, but before asking the question I want to say I have known Mr. Hull 27 years, have served in Congress with him, and I can assure you of his high degree of integrity, sincerity, and intelligence. That is all I care to say on that. But I would like to have you tell me just what you mean by waste

when you talked of the possibility or desirability of amending your State statute. How do you define waste?

Mr. HOGAN. Well, using Webster's definition——

Mr. CROSSER. I know, but I am asking for your definition.

Mr. HOGAN. I know. By Jove, I would hesitate to give a definition of "waste." It would have to be rather long-winded and I would like to give some thought to it, and I will do so.

Mr. CROSSER. It is a very important question, as I see it.

Mr. HOGAN. I will do so, and if you give me some time I will make a study of it and will send it to you, Mr. Crosser.

Mr. CROSSER. We will be here tomorrow and you can——

Mr. HOGAN. Oh, it may take me several weeks to work out that definition.

Mr. CROSSER. I regard that as a rather important question.

Mr. HOGAN. Oh, it is very vitally so.

Mr. CROSSER. You do not care to answer it tonight anyway?

Mr. HOGAN. Oh, I could not.

Mr. CROSSER. That is all.

Mr. KELLY. I guess that is all, Mr. Hogan. Mr. Wylie. Mr. Wylie, before starting there was 2 hours I allocated to you and you have your group here but the allocation of time has broken down and we are going to adjourn this meeting tonight at 6:15 and if you have a short statement to make we can incorporate it in or we will have to carry on tomorrow.

STATEMENT OF W. B. WYLIE

Mr. WYLIE. My statement will be very short, in fact, won't take me over 20 minutes.

Mr. COLE. Order, please.

Mr. WYLIE. My name is W. B. Wylie. I own and operate a service station in Los Angeles and am secretary of the Retail Petroleum Association of California, which is a nonprofit association with a membership of approximately 800 independently owned service stations.

In appearing before you gentlemen, I think that we appear in the interests of the very small man in the petroleum industry. We have no production, we have no big graphs like you have been presented with, and a lot of the stuff you have been listening to is not entirely over our head and we believe we are greatly affected by it.

In our type of business, in legislative matters we have to consider to a large extent the consumers' viewpoint because we are not operating over large trading areas. While our places of business may be small, in the aggregate they do represent a very large investment and employ many people, but our trading areas being small, we depend upon the consumers in those small trading areas and, therefore, the retailer must consider the price at which he can offer his merchandise or his petroleum products at retail to those consumers.

Mr. COLE. There is unusual noise in this room here. We want to hear this witness and afford all the privileges there are to a man that is relating his case to this committee. Go ahead.

Mr. WYLIE. In H. R. 7372, the National Oil Conservation Act, if it is enacted by the Congress of the United States, our mind naturally

goes to what and how may the independent refineries whom we rely upon for our source of supply be affected, and while I do not intend to talk on this bill from a legal standpoint, I have read it and I am forced to assume that a tremendous amount of authority is given to a commission, a commission who would have the power to step into any field and regulate the production of that particular field. The independent refinery, who in many cases must rely upon contracts with various producers in various fields, may find that his source of supply is drastically reduced, thereby reducing the amount of oil and gas that they would have to sell, which, coming down, reduces the available supply of gasoline for independent service stations, who, in this particular trading area rely on those independent refineries to a large extent for their source of supply, and, as a result of that situation, we are forced to admit that the retail price of gas line has a great possibility of being raised to the consumer. We are not opposed to conservation. We do not believe in waste, but we do believe that if any legislation is enacted, that it should be done by the State. I appreciate that the people of California recently, in fact, last November, turned down such legislation. But we had unalterably opposed Federal legislation because I probably have been something like the small boy who can remember back when my mother told me not to touch the stove when it was hot because I would probably get burned, so my mind goes back to the early part of 1935, to June, when we touched Federal oil control under the N. R. A. and we got burned.

On June 5 of 1934, when we really began to operate under the Department of the Interior, who was in charge of our N. R. A. enforcement, the majority of the independent stations in southern California were buying their supplies from independent refiners. They were selling their supplies to the public at approximately 2 cents per gallon retail less than we found ourselves operating for, immediately that we found ourselves under Federal jurisdiction.

Ninety days after this went into effect the trend of business or the switch of business from the independent stations to the larger stations was plainly noticed. It was so plainly noticed that many independent dealers at that time had been forced to discontinue the lesser known brands of the unknown refiner, and more or less bind themselves to the larger refineries for their source of supply. Independent brands to a large extent disappeared from the street, and independent brands virtually disappeared from the market, and, gentlemen, some of those refiners have never come back onto the market.

I had my eyes opened up a little bit during this period. We protested, and we had the administrator here in Los Angeles who was supposedly operating for the good of the people and may conferences were had with him, and we received, as independent dealers, a lot of sympathy but no action. Approximately 4 months of operation under the N. R. A. and then the dealers, through necessity and self-preservation, ignored the Administrator and reduced their prices on the independent brands, those that had been left, of 1 cent a gallon. We were called to the office of the Administrator to see, if through the activity of the association, if we could not talk this over and restore our market back up to that price. In that conference I asked the Administrator why we were not allowed a differential and

such things as that, and I never will forget the answer that I received, that our action had embarrassed Mr. Kingsbury.

I realized then for the first time that possibly—these may be insinuations, possibly, gentlemen, but they are facts—that where we thought we were under the jurisdiction of the Government, we probably were not. However, that market was restored and conditions went on, and one day I was greatly surprised to find that a large independent refiner, and in fact the largest in the State, who had done a very fine job of merchandising and had maintained his price through advertising and merchandising ability, and had built up a very fine consumer reputation for his brands, and this particular refiner operated his own refinery, had his own refinery products and in turn sold them to dealers, sold them to the public, but for some reason, unknown to me, his oil became hot. I received a notice and I was informed by three other supply companies that if I continued to sell that kind of gasoline, that they would discontinue selling to me on the order of the Administrator.

It became necessary for me to keep my sources of supply, and in order to do that I had to discontinue the use of this company's gasoline, and it was replaced by a major oil company's gasoline. Fortunately that was declared unconstitutional, and I still have that independent's gas supply in two of my pumps.

It is those conditions, gentlemen, that cause the dealers of California to oppose any such legislation as H. R. 7372. That, gentlemen, is practically what I have to say to you, but we do oppose it.

Mr. KELLY. Mr. Wylie, you mentioned about your association having 800 service stations as members of it. How do you ascertain the membership? How do you get an organization with a personnel that large?

Mr. WYLIE. Our association—we are 6 years old—came about through persistent and more persistent efforts and many meetings and talks, and we have been able to maintain and sell only to that type of membership.

Mr. KELLY. Do your members pay dues in the organization?

Mr. WYLIE. The dues in the association are \$18 a year or \$1.50 per month.

Mr. KELLY. You have 800 members who are paying dues into the association?

Mr. WYLIE. That is correct.

Mr. KELLY. You mentioned about the retail price being raised at various times to the consumers, and that your organization more or less was an organization to protect the consumers. Who sets the prices?

Mr. WYLIE. I do not wish to imply our association, the Retail Petroleum Dealers Association of California, is an organization to protect the consumer. We have to consider the consumer in the welfare of our membership, and to give him gasoline products at the lowest possible prices.

Now as to who sets the prices: We have many brands of gasoline in California on which the price is not set. For instance, I have a six-pump station handling four refiners' products. Three of the pumps in my place of business it is absolutely up to me to sell it at any price that I may wish. On the three other pumps that I have the refiners have stipulated under the fair trade act of California, the retail price

at which you must sell their gasoline. There is a variation in these prices. For instance, two of them have stipulated 18 cents a gallon, and the other is 15½.

Mr. KELLY. It is more or less established by consumption at that particular station?

Mr. WYLIE. I would assume that it would be established more or less by the consumption. I think that price has a great deal to do with consumption.

Mr. WOLVERTON. Does your organization seek to maintain a price structure among its members?

Mr. WYLIE. We seek to maintain no price structure. We believe that is the individual prerogative of each individual supplier to maintain its own price.

Mr. WOLVERTON. What is the variance if any in your prices?

Mr. WYLIE. Right now in Los Angeles we have a variation in price, to the best of my knowledge, from 11.9 to 21 cents.

Mr. WOLVERTON. Well, that would be due to a difference in the grade of gasoline, would it not?

Mr. WYLIE. Putting it in another way, on third-structure gasoline, as it is commonly called, we have 11.9 cents, however, I believe, there is a 11.5 price in two or three instances to 16.5 cents.

Mr. WOLVERTON. For the same grade of gasoline?

Mr. WYLIE. That is correct.

Mr. WOLVERTON. What makes the difference?

Mr. WYLIE. Well, different prices from the refinery to the dealer. Some refiners sell it at a lower price than others. There is no set price between various refineries to my knowledge. Different types seem to line up fairly close together, within a half cent.

Mr. WOLVERTON. In the locality from which I come there is practically no variance in the major companies' prices. Is there any variance in the price charged by the major companies to service stations in this State?

Mr. WYLIE. There is a variance in the State, naturally, with the geographical areas and freight rates.

Mr. WOLVERTON. Take the same locality.

Mr. WYLIE. There is no variance in prices in Southern California, that is, in Los Angeles. That is in the retail price. There is variance in the wholesale price.

Mr. WOLVERTON. I am speaking of the retail price to the consumer who drives up in his car to the service station.

Is there any variance in the price between the service stations operated by the different major companies?

Mr. WYLIE. No.

Mr. WOLVERTON. Is there any in your independent organization?

Mr. WYLIE. Yes; there is amongst our members, a great variance of prices, each individual member sets his own price.

Mr. WOLVERTON. Would you say that is due to purchasing from different refineries?

Mr. WYLIE. That is true, from a different source of supply.

Mr. WOLVERTON. How do your prices compare with the major company prices?

Mr. WYLIE. My particular prices—I happen to be selling one major brand of gasoline and the price on that particular pump is identical with the price as established in that company's stations, due

to the fact that they have availed themselves of the California Fair Trade Act.

Mr. WOLVERTON. Can you sell oil and gas at a different price than the major company that supplies you?

Mr. WYLIE. Not as long as they can stipulate under the act, that is, under the Fair Trade Act.

Mr. WOLVERTON. Will you explain to me what your Fair Trade Act does?

Mr. WYLIE. The Fair Trade Act is a law that gives the owner of a particular trade-mark, brand, or name, the privilege to protect that name by stipulating his retail price. I believe it is in 44 States now.

Mr. WOLVERTON. Does your independent association sell trade-mark gas?

Mr. WYLIE. We sell no gasoline. In fact, we sell no commodities whatsoever.

Mr. WOLVERTON. Well I mean the membership of your association.

Mr. WYLIE. Oh, yes; our members are free to purchase from whom they wish and sell whatever they choose.

Mr. WOLVERTON. Is there any difference in price between your member as to the price they charge for the same grade of gas or the same trade brand?

Mr. WYLIE. I will have to answer that yes and no. It depends entirely upon the protection around what they are selling. If they are selling a brand that has a price stipulated under the Fair Trade Act then there is no variation of price among our membership on that particular brand, but if they are selling various brands not so stipulated then there is a variation of price between that membership. They can sell it at any price they wish to.

Mr. WOLVERTON. Who fixes the price of the trade brand gasoline?

Mr. WYLIE. The owner of the brand. It is up to the individual to fix that price if he chooses to fix it. It is not necessary to fix it at all. We have many brands on which the price is not fixed.

Mr. WOLVERTON. Is there any State regulatory body that has any power to function to determine whether it is a fair price to the consumer?

Mr. WYLIE. None whatever. We however do have in California the California Unfair Practices Act which prohibits selling below cost. That is punishable by a criminal action or by a civil action by the damaged party.

Mr. WOLVERTON. I had the impression from what you said that the price was fixed. I assume now from your answers you mean it was fixed by the particular refiner that has the trade name rather than by a State official.

Mr. WYLIE. That is correct. It is fixed by the individual refiner owning that particular brand.

Mr. WOLVERTON. I neglected to ask Mr. Pemberton while he was on the stand, and if you don't know I don't want you to even attempt to answer because it is an important question, relating to pipe lines in the State. To what if any effect if you do have any pipe lines here would that affect the price structure.

Mr. WYLIE. I am afraid I am not prepared to answer that question.

Mr. WOLVERTON. Can you answer me whether there are pipe lines in the State?

Mr. WYLIE. Yes; there are pipe lines in the State.

Mr. WOLVERTON. By whom are they owned?

Mr. WYLIE. I cannot answer you that. I would have to say I imagine they are owned by various companies, I imagine the Union has some, the Standard and the Shell.

Mr. WOLVERTON. Will there be anyone in your group who will be able to give me information about how pipe lines are operated and the effect it may have on price structure?

Mr. WYLIE. There will not be any.

Mr. WOLVERTON. I hope somebody else appears that can.

Mr. WYLIE. I hope so, too, because it will be interesting to me.

Mr. WOLVERTON. That is all.

Mr. PEARSON. May I ask one question.

Mr. Wylie, did you say you handled the products of four companies?

Mr. WYLIE. Yes, sir.

Mr. PEARSON. What four companies are they?

Mr. WYLIE. I said I handled the products of four companies, but I had in mind strictly gasoline. I handle products of possibly 10 or 12 other commodities.

Mr. PEARSON. I had in mind gasoline.

Mr. WYLIE. I handle the product of the Wilshire Oil Co., the Caminol Oil Co., the East & West Refining, and the Union Oil Co. of California.

Mr. PEARSON. Only one of the major companies?

Mr. WYLIE. Only one major company; that is correct?

Mr. PEARSON. The members of your organization are privileged to and do purchase gasoline from all of the major and minor operating companies as well, do they?

Mr. WYLIE. That is true. Insofar as the Association is concerned we do not restrict the membership as to who or from whom they may purchase their supply. However, we do have in our membership other types of dealers. By that I mean other types of dealers who owns his inventory, who buys at wholesale and sells at retail. Some choose to purchase exclusively one company's line of merchandise. We call them 100 percenters. Others choose to split them up—we call them split pump dealers, and I happen to be in that class.

Mr. PEARSON. Did your association join with others in opposing the passage of the Atkinson bill?

Mr. WYLIE. After a great deal of consideration we supported the Atkinson control bill. We stand somewhat alone there. I might qualify that and say we looked ahead into H. R. 7372 and considered it the lesser of two evils.

[Laughter.]

Mr. PEARSON. Was that your principal reason, Mr. Wylie, for supporting the Atkinson bill?

Mr. WYLIE. That was one of our principal reasons. However, we did see in this piece of legislation the possibility of using the act in the future through amendments to set up or use information we can talk about here for the purpose of stabilizing, or probably I should say maintain sound retail marketing return to the service station, a better return on their investment. I say that from section 25 of the act—20.5, rather, which instructs this Commission to make a thorough investigation and report to the Governor and the legislature—shall

make a report to the Governor and the legislature of its findings, material, and consideration of future legislation on the said policy, which takes into consideration markets.

Mr. PEARSON. Your organization contributed then to the funds in support of the Atkinson measure?

Mr. WYLIE. We didn't make any cash contributions to that, however we did lend our publicity to it.

Mr. PEARSON. Well, were you motivated at all by the thought that the Atkinson bill was a needed regulation of control for the industry, would you have supported it?

Mr. WYLIE. Not necessarily a needed regulation, as we watched, it was the business of our people to watch the volunteer work in California which has contributed very extensively to maintain quite favorable markets. As I previously testified here we considered it the best of two evils—that is the lesser of two evils.

Mr. PEARSON. In other words you felt and your organization felt that there should be some control and if there should be some control that you would prefer control through a State regulatory body rather than through a Federal regulatory body?

Mr. WYLIE. That is correct. I still maintain that position.

Mr. PEARSON. Did you study the provisions of the Atkinson bill before your association went on record?

Mr. WYLIE. Oh, yes.

Mr. PEARSON. And knew what it is and what it would do?

Mr. WYLIE. That is correct.

Mr. PEARSON. And with that knowledge you thought that the State needed an act of that kind?

Mr. WYLIE. It was the lesser of two evils.

Mr. PEARSON. Well, let us analyze that for a moment. The referendum of the people of the State of California had nothing in the world to do with the action of Congress on House Resolution 7372, did it?

Mr. WYLIE. No; I think we anticipated. We had knowledge of H. R. 7372, and Mr. Ickes had put up some pretty nice statements.

Mr. PEARSON. Did you think the passage of the Atkinson bill would prevent the enactment of H. R. 7372?

Mr. WYLIE. I thought it would lean possibly very greatly to do it.

Mr. PEARSON. What did you think was going to happen to the States of Texas and Oklahoma and all the other oil-producing States who for several years have had regulatory statutes? Did you feel the enactment of H. R. 7372—or rather the enactment of the Atkinson bill—would tend to defeat the enactment of H. R. 7372, even though we had had a number of States who had a similar regulatory act on their statute books?

Mr. WYLIE. I entertained that thought, believing that California and Illinois, if they had State legislation, it would have a tendency—in fact it would make it useless for Congress to have a national act.

Mr. PEARSON. Well, assuming that there was no legislation, and no reason for Congress, as you say useless for Congress to have any national act, would you still favor the enactment of the Atkinson law?

Mr. WYLIE. I would favor that, providing that the central committee, in their voluntary curtailment, if that should fail, as the next alternative.

Mr. PEARSON. Were you in California when the Sharkey bill was up in 1931?

Mr. WYLIE. I was.

Mr. PEARSON. Did you support that bill?

Mr. WYLIE. No; I didn't support the bill. In fact, I took no particular activity in it.

Mr. PEARSON. Well, now, at that time, the condition of the industry was in a deplorable situation in this State due to the falling down of the voluntary system, and you opposed that bill, you say, and you give now as your reason for supporting the Atkinson bill the fact that—you say now that you would not have supported that so long as the voluntary system was upheld. How do you reconcile those two positions?

Mr. WYLIE. I said that the support of the Atkinson was the lesser of two evils. In the Sharkey bill, where I say I supported it, I was not informed, as I am today, that a lot of water had gone over the falls.

Mr. PEARSON. That is all.

Mr. WOLVERTON. Mr. Wylie, several times you made a reference to a choice between these two bills as the lesser evil. I do not want to express an opinion as to whether either of them was an evil or whether one was the lesser evil than the other, but I am inclined to think the basic thought you expressed has a great deal of substance to it. See if I can state your position, as I understand it. You were fearful in the State of California that if the State of California did not adopt some regulatory measure of its own, that then there was great danger that there would be Federal legislation and under such circumstances you would prefer that it be State legislation?

Mr. WYLIE. That is absolutely correct. Putting it in another way, we got burned under the N. R. A. with the Federal regulations. I looked at this Atkinson bill as a sort of another stove of a different color, but I imagine I was willing to see if I would get burned on that too, it was the lesser of two evils.

Mr. WOLVERTON. I am not sure that the basis on which you acted in your attitude on the Atkinson bill has not been the same basis on which other States have adopted regulatory measures. Texas is opposed to Federal legislation.

They adopted a State regulatory measure, Oklahoma the same, and I might enumerate all of the States that have done so. I am inclined to think they saw the wisdom of having State legislation in an effort to preclude Federal legislation. I have not heard at any time in any of our hearings such violent opposition to State regulation in the States that already had such legislation as I have heard here in these hearings, against this State having similar legislation. It is difficult for me to understand how the oil industry in Texas and those other States that have State regulatory measures can be, apparently, so well satisfied with the results in their States and in California such opposition to the same type of legislation.

May I say further that I have been on this committee from the time the first bill was introduced, the Thomas-Disney Act. It was with reference to that proposed legislation that we came to California about 5 years ago. We went also to the other oil-producing States. It is a matter of record that when our hearings were first held in

Washington on that measure there seemed to be favorable opinion expressed by the oil industry for Federal regulation, but after the adjournment of our early hearings on that bill and our subsequent hearings in the fall of the same year, we found that there had been a change of opinion in the oil industry, and the industry seemed to be opposed to what previously they had seemed to favor. I thought there must be a reason for it. I am not in a position to speak as to what the industry, the oil industry, may have considered as a sufficient reason to change. I have always had a personal opinion that it may have been due to a bill that had been drawn in the Department of the Interior, which never saw the light of day so far as introduction in Congress was concerned. I refer to the so-called Margold bill.

It may be when the industry saw the extent of the Margold bill, which seemed to have ramifications that might have affected even the question of service and marketing as well as production, refining, and transportation, that they felt that they were going too far in asking for any Federal regulation. It may have been their thought that the nose of the camel under the tent might be eventually be disastrous. I am not certain whether that was the case. No one has ever confirmed my thought that by anything that has been said in any of our hearings, but it has been a thought, at least, that has lingered in my mind. The same interests that were opposed to Federal regulation were the same interests that ultimately obtained State regulation in these different States that now have it. I am inclined to believe that they did this with the knowledge that by doing so they were to that extent precluding the possibility of Federal legislation and it is with respect to that phase of it that I have been very much interested in these hearings to understand why there is such violent opposition, on the part of the oil industry to proper State regulation and why they do not see it as a solution as it has been seen in other States.

Mr. WHYLIE. It is a highly controversial subject for me to try to explain it, I am afraid I might fail.

Mr. WOLVERTON. I am not asking for your opinion. I am making the statement with the hope that before we have finished our hearing, some witness who feels qualified to speak on it might make some reference to it.

Mr. KELLY. All right. Thank you, Mr. Wylie. Mr. Johnson, regarding your group, we only have 10 minutes tonight, and I think we better adjourn the hearing at this time and hear your group tomorrow; the committee will stand adjourned until 9:30 o'clock tomorrow morning.

(Whereupon an adjournment was taken to 9:30 a. m., January 18, 1940.)

PETROLEUM INVESTIGATION

THURSDAY, JANUARY 18, 1940

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE OF THE COMMITTEE ON INTERSTATE
AND FOREIGN COMMERCE,
Los Angeles, Calif.

Mr. COLE. All right, gentlemen, the committee will come to order. Mr. Pemberton, I understand you have a correction you desire to make in your testimony of yesterday, Mr. Pemberton.

Mr. PEMBERTON. Yes sir.

Mr. COLE. Do you want to make a correction in your testimony now?

Mr. PEMBERTON. Yes, Mr. Cole. Yesterday I testified concerning the amount of aviation gasoline sent from California to Russia and I have been corrected by authorities to the extent that during the year 1939 only two barrels of aviation gasoline were sent from California to Russia; 883,530 barrels of ordinary gasoline was exported.

Mr. COLE. Now, where are these figures from?

Mr. PEMBERTON. These are taken from the statistics of the Bureau of Foreign and Domestic Commerce of the United States Foreign Trade Section.

Mr. COLE. As of what date?

Mr. PEMBERTON. The date is as the end of November. There is no date on this particular communication, but it was evidently made yesterday.

Mr. COLE. Your opinion yesterday was based upon your close association with the facts you presented to us, was it not?

Mr. PEMBERTON. No; it was not. It was simply a mistake on my part, that the gasoline was aviation gasoline and not straight gasoline.

Mr. COLE. Was that up to November?

Mr. PEMBERTON. It was for the entire year of 1939. I do not know if anything has been shipped in January.

Mr. COLE. Do you want to put that in the record?

Mr. PEMBERTON. Yes; I would like to have this go in the record.

Mr. COLE. All right. Let that be incorporated in the record at this time, copy it in the record.

GASOLINE EXPORTS TO RUSSIA, 1939

According to the monthly United States Foreign Trade Statistics No. 3103-A of the Bureau of Foreign and Domestic Commerce, there were only two barrels of aviation gasoline shipped from the United States to Russia in the first 11 months of 1939.

However, there were shipments of gasoline labeled on the report as "Other gasoline."

Following are shipments of gasoline to Russia as taken from the reports mentioned:

United States gasoline exports to Russia

	5016.1—Aviation gasoline in bulk	5016.2—Aviation gasoline in containers, barrels	5017.1—Other gasoline in bulk, barrels
January.....	-----	-----	-----
February.....	-----	-----	-----
March.....	-----	-----	-----
April.....	-----	-----	-----
May.....	-----	-----	-----
June.....	-----	-----	-----
July.....	-----	-----	-----
August.....	-----	-----	-----
September.....	-----	-----	248, 154
October.....	-----	-----	318, 491
November.....	-----	2	316, 885
Total.....	-----	2	883, 530

From the above it is apparent that the recent movement of gasoline to Russia from California was not aviation gasoline, with the possible exception of the two barrels in the second column.

(Compiled by Oil Producers Agency of California, 1-17-40.)

Mr. COLE. The next and last group to appear are the Oil Producers Agency of California and I corresponded with Mr. Johnson, vice president. Is Mr. Johnson here?

Mr. KELLY. He was outside a while ago.

Mr. COLE. Is Mr. Johnson of the Oil Producers Agency of California here?

Mr. CRANSON. I am with the group.

Mr. COLE. What is your name?

Mr. CRANSON. L. A. Cranson. I was requested to appear.

Mr. COLE. Where is Mr. Johnson, do you know?

Mr. CRANSON. He is supposed to be here.

Mr. COLE. Well, Mr. Cranson, maybe you can supply the information. How many in your group are here to testify today?

Mr. CRANSON. I believe there are six.

Mr. COLE. Mr. Johnson?

Mr. CRANSON. Mr. Johnson has a paper as well as myself and Mr. Beddow.

Mr. COLE. Mr. Beddow?

Mr. CRANSON. Yes; and Mr. Whaley.

Mr. COLE. And Mr. Kleinpell?

Mr. CRANSON. Yes, sir; but I do not think he will have a paper.

Mr. COLE. And Mr. Garrison?

Mr. CRANSON. Yes; Mr. Garrison has a paper.

Mr. COLE. Will it be the proper order to start with you?

Mr. CRANSON. I believe that was the intention.

Mr. COLE. That is all right Mr. Cranson. You may proceed now.

STATEMENT OF L. A. CRANSON

Mr. CRANSON. My name is Lorin Alvin Cranson. I am vice president and a director of the Honolulu Oil Corporation whose head office is located in San Francisco, Calif. My company has properties and producing wells in several California fields, in Texas, and in

Wyoming. I am also a director of the Kettleman North Dome Association in California—

Mr. COLE. I am afraid we are having a little difficulty in hearing you.

Mr. CRANSON. Is this thing working [indicating microphone]?

Mr. COLE. Yes; but that is for the people in the back of the room.

Mr. CRANSON. I have been actively engaged in the oil business since 1922, and have worked in field operations, geology, petroleum engineering, have served in curtailment or proration work, and have been in the San Francisco office of the company since 1932.

I graduated from Stanford University with the degree of A. B. in geology in 1922.

I intend to place before you gentlemen in a general and brief manner, supported by some statistics, my ideas with respect to waste in connection with the California oil industry. The topics will be as follows:

- I. Gas waste.
- II. Oil waste.
- III. Waster of reservoir energy—Underground waste.
- IV. Well spacing.
- V. California State laws regarding conservation of oil and gas.
- VI. Conclusions and summary.

I. GAS WASTE IN THE CALIFORNIA OIL INDUSTRY

What constitutes waste and what constitutes conservation in the oil industry? Complete definitions of these terms are impossible. Our duty in the light of our present knowledge is to utilize petroleum and its products in a proper manner, to apply the most effective known methods of recovery with respect both to producing and refining operations, and to continue, as we have in the past, our active search for more efficient methods of recovery and utilization. I believe that we are performing this duty in a remarkable manner.

Mr. COLE. Mr. Cranson, may I interrupt you for a minute and ask you how much time your prepared statement will take?

Mr. CRANSON. I believe about, approximately 30 minutes.

Mr. COLE. This will be off the record.

(Discussion off the record.)

Mr. COLE. Mr. Reporter, you will copy this statement into the record.

Mr. CRANSON. Gas waste may be considered to fall into two types; namely, avoidable waste and unavoidable waste. Most gas waste in California has been unavoidable at the time it took place, for the gas was produced along with the oil as a byproduct and there was a market for the oil, but none for the gas. It must be kept in mind that our gas markets have been expanding at a very rapid rate, and the development of additional uses for gas has helped materially in solving the problem of utilization of our gas.

The problem of waste will be found to exist in all industries.

We cannot employ ideas and equipment which are yet unknown, and we can always look backward and see the savings which could have been made by the use of modern methods. If we could likewise

look into the future, we would no doubt be surprised by the inefficiency of our present practices. I might refer to one well located upon one of our own properties in Buena Vista Hills which was completed about 1914. This well blew the surface fittings away and flowed wide open to the air for many years. Some iron sheets and timbers were thrown over the mouth of the well to prevent excessive spraying of oil. The oil ran into a surface sump and was then run to shipping tanks. The gas and gasoline were thus wasted to the air for many years. This practice was not considered extraordinarily bad at the time because of lack of knowledge of gasoline manufacture from wet gas, together with the scarcity of markets for these products. We had little, if any, knowledge at that time of the part played by gas in the recovery of oil.

I say, therefore, that most loss of gas might be termed "unavoidable loss" at the time such loss took place. It is true that there are other losses than blow to the air. There are pipe-line losses, losses from oil tanks, compressor-plant losses, underground losses, and so forth. These have been greatly reduced by modern practices, and will no doubt be further reduced as our efficiency continues to increase.

I have incorporated at this point data sheets and graphic charts which show pertinent gas statistics for the State as a whole, and for three important gas- and oil-producing fields—namely, Kettleman North Dome, Ventura Avenue, and North Belridge. These three fields are currently producing approximately 50 percent of the total State gas production. I would also include the fields of Montebello and Wilmington, but I have been advised that these fields will be discussed by others to appear before your committee.

The data are for the period 1930 to 1939 (11 months), inclusive, and show in each case total gas produced annually, total gas blown to the air annually, and the percentage of total gas production blown to the air annually. Oil production is shown on the data sheets but not on the charts.

I left that off the chart, because I thought it might complicate it.

CALIFORNIA STATE TOTAL

We will first consider the State as a whole. You will note that in 1930 the total amount of unconserved or blown gas amounted to about 215,500,000 M cubic feet, which was equal to 39.5 percent of the total production. For the period from 1935 to 1939, inclusive, however, the average percentage of unconserved gas has amounted to approximately 7.3 percent. Thus, remarkable strides in conservation have been made for the State as a whole, and the industry is working constantly to conserve all of the gas and to improve its use. It is not concerned with preventing blow alone, but is equally concerned with getting the greatest amount of work out of all of the gas. I will cite only one example of this—namely, gas storage and gas injection.

Data relative to this phase are shown herewith. Gas storage and gas injected have not been broken down into their respective parts, nor have the data been segregated by fields. This is in the interest of brevity. Gas storage as a rule implies gas which has been stored in underground formations in order to prevent dissipation and to be withdrawn and used at a later date. Injected gas is gas which is

injected into oil horizons for the purpose of assisting in the recovery of oil, gas, and gasoline. Both of these uses are conservation measures.

Mr. COLE. Right at that point: These conservation measures you describe, are they in effect in California?

Mr. CRANSON. Yes.

Mr. COLE. In how many fields?

Mr. CRANSON. I couldn't say offhand.

Mr. COLE. As repressuring?

Mr. CRANSON. Either as repressuring or gas injection. I know we have been doing it in Buena Vista Hills, one of our properties, since about 1925 and still are. We have put billions of feet of gas back into the ground; at Dominguez the same thing has taken place and at Kettleman Hills and Belridge substantial amounts, as well as in other fields. I am not prepared to say how much or in how many fields, but I could look that up.

Mr. COLE. That is all right.

Mr. CRANSON. These data show that during the period from 1930 to 1939 (11 months), inclusive, some 80,000,000 M cubic feet were handled in this manner. This is equivalent to 2.38 percent of the total production for the same period and is equal to about three times all of the gas blow for the State during the year 1939.

KETTLEMAN NORTH DOME OIL FIELD

The data for Kettleman North Dome oil field, located in Fresno and Kings Counties, Calif., indicate that in 1930 there was unutilized gas in the amount of approximately 108,000,000 M c. f., or about 69 percent of the total production for the year.

During the year of maximum oil production, 1936, when approximately 29,000,000 barrels were produced, the gas production was less than in 1930 by about 48,000,000 M c. f., while the blown gas amounted to only 2.03 percent. The volume of blown gas was slightly in excess of 2,000,000 M c. f., as compared with 108,000,000 M c. f. in 1930.

The 11-month period in 1939 shows that the unconserved gas was reduced to about 1,300,000 M c. f., or 1.41 percent of total production.

It is also pertinent to note that the gas-oil ratio was reduced from about 26,000 cubic feet per barrel in 1930 to 5,000 cubic feet per barrel in 1939.

These data, in my opinion, indicate remarkable progress in gas conservation and utilization. It should be noted also that Kettleman Hills is underlain by a very prolific and high-pressure Eocene gas and light-oil stratum, and that gas from this zone is being used in the production of considerable quantities of Temblor zone oil. One recently consummated agreement covering a large portion of the south end of the field provides for maintaining gas-oil ratios at 3,000 cubic feet per barrel, which amounts to a reduction of 2,000 cubic feet per barrel below the present field average of 5,000 cubic feet.

NORTH BELRIDGE OIL FIELD, KERN COUNTY, CALIF.

The gas data for the North Belridge oil field show that in the year 1930 the total gas production was approximately 4,800,000 M c. f. and that the gas blown amounted to about 3,750,000 M. c. f., or about 78.5

percent. In 1931 some 50 percent of the production was not utilized, and in 1932 approximately 13 percent. The 11-month period of 1939 shows a blow of about 1,450,000 M c. f., equal to only 3.65 percent of the total production. The data also indicate that considerable gas has been injected into the formations. During the 1939 period approximately 1,850,000 M c. f., equal to 4.72 percent of the field production, was disposed of in this manner. These figures show that about 400,000 M c. f. more gas was returned to the oil zones than was blown to the air. In my opinion, real conservation has been shown in this field.

VENTURA AVENUE OIL FIELD, VENTURA COUNTY, CALIF.

The Ventura Avenue oil field produced about 59,000,000 M c. f. of gas in 1930, of which amount about 12,000,000 M c. f., or 20.42 percent, was unutilized. During 11 months of 1939 the field produced approximately 33,700,000 M c. f., of which some 760,000 M c. f., or 2.27 percent, was unutilized. The average gas blow for the last 6 years has been approximately 1.8 percent. This field has presented another outstanding example of the conservation of gas.

As stated above, the three fields discussed are producing approximately 50 percent of the State's gas. The present annual amount of their unutilized gas is about 3,500,000 M c. f., equivalent to approximately 2.2 percent of their total production. It is to be noted that one field, namely, Kettleman North Dome, has approximately 50 percent of its area operated in accordance with a unit agreement, and most of the remaining area is operated pursuant to the terms of a collateral agreement. Although the field's gas-conservation record is excellent, it is about on a par with North Belridge and Ventura Avenue, where no such unit plans or operating agreements exist.

II. OIL WASTE IN CALIFORNIA, EXCLUSIVE OF UNDERGROUND WASTE

I think I will summarize this topic by saying that in it I point out that at the present time there is practically no waste above ground. The tank farms, most of them, are equipped with systems that take care of the evaporation losses, and the pipe-line losses are very small. The loss in bleeding tanks is very small, so that I believe you can safely say that above ground there is practically no waste in the oil industry.

I do not know of any data from which accurate over-all statistics relative to surface waste of oil can be compiled, so my statements will be general rather than specific. Some specific instances could be cited where sumps have broken, storage has burned, pipe lines have broken, wells have gotten away, and so forth, but these instances would not account for large volumes of oil as compared with total production, and should be, for the most part, classed as acts of God and therefore unavoidable. Much has been done, however, to prevent such losses, and they are now so rare as to be negligible.

Loss of oil through evaporation was at one time a major loss, but most evaporation losses are now prevented through proper separation of oil and gas and by means of vapor-recovery systems.

In years gone by, large quantities of oil were stored in unlined earthen sumps, and losses were large, both through evaporation and by seepage into the earth. This practice is practically nonexistent now, except where small quantities of very heavy refinery residuum

or extremely heavy, low-grade crude are so stored. There is an instance of such storage at Santa Maria, where undesirable, cheap refinery residuum has been stored in earthen sumps. If losses occur, they will be extremely low, for certainly no evaporation will take place, and very little seepage will accrue, due to the tarry character of the residuum.

Santa Barbara County has passed an ordinance against such storage practice, and it should not take place in the future in that county.

Oil losses as a result of tank bleeding have been reduced to a minimum by automatic bleeding devices, chemical treatment of oil to break down emulsions, and more skillful operation. Any oil so escaping is commonly used to surface roads or is picked up and reclaimed, and so is not lost.

In our recently developed and present developing high-gravity oil fields, a barrel of oil is never exposed to the air, but travels from well to refinery in a closed system. You can pass through such a field on an inspection trip and not see a single barrel of oil on its way from well to refinery. It is sometimes difficult to believe one is in an oil field, especially when the derricks are removed from the wells. The character and quantity of oil and the amounts of gas produced cannot be estimated by a trip through the field, but only through an examination of production data. We have progressed far from the days when a well flowed wide open into flow tanks, with tremendous evaporation losses and with loss of all of the gas and casing-head gasoline.

A barrel of oil coming from one of the modern high-pressure wells never sees the light of day from the time it leaves the well until it gets to the refinery, and if you go to one of those wells you probably won't see a barrel of oil while you are there.

WASTE OF RESERVOIR ENERGY—UNDERGROUND WASTE

The waste of reservoir energy which supposedly results in the underground waste or loss of hydrocarbons is a very controversial and difficult subject to handle except in a general manner. I know of no reliable statistics which set forth facts demonstrating that there have been positive known amounts of oil and/or gas lost through improper utilization of reservoir energy.

Not many years ago, before our drilling technique had developed to its present scientific art, we, as at present, attempted to set our casings in wells in proper position to exclude water from our oil and gas zones, and to prevent the migration of oil and gas to formations where they might be lost either temporarily or permanently. Our efforts were sincere, but in many instances subsequent developments have indicated that we were in error. I know of one instance where we set at least one million dollars' worth of casing to protect a gas zone, only to find later that our results were extremely questionable. We were blundering in the right direction, but lacked sufficient data to do a perfect job. Modern equipment and practices have enabled us to accomplish many of the constructive things which we have anticipated for years. We are now able to determine many of the characteristics of our reservoirs, to segregate our producing zones so as to greatly reduce or eliminate any migration between zones, to set our casings and place our cement so as to greatly minimize underground waste. Our research work in connection with fluid behavior under different types

of reservoir conditions has provided us with important guides in determining efficient oil-field practice. All operators are keenly aware of the desirability of conserving underground energy, and are conserving it to the best of their knowledge and insofar as conditions will permit. Efficiency is accelerating, and we can hope for much better results in the future.

Before the advent of the core barrel, core analysis, electrical logging devices, and so forth, we were forced to guess at the character and thickness of an oil zone from drillers' logs, which were, as a rule, extremely inaccurate. Thus we might assume an oil zone 100 feet thick to consist entirely of sand and compute residual oil left in the formation on that basis. Core analysis, electrical logging, and so forth, might later reveal, however, that the assumed 100-foot sand zone was 50 percent shale, and that an additional 10 percent was very dense and impervious, and probably would yield little, if any, oil. We might subsequently find that the oil sand contained 30 percent of connate water in its pore space. This water did not migrate out of the sand, so that we could account for it, but remained static there until careful core analysis revealed its presence. We would then be forced to revise our estimate of residual oil, because if the pore space which was allotted to oil and gas contained 30 percent of water, then obviously the volume of estimated residual oil would have to be decreased by the amount of the connate water in the sand. We might find also that a barrel of oil in the well does not equal a barrel when raised to the surface but shrinks to something less when the gas has been removed from it. Even though some oil is left in the formation when the gas is exhausted, do we know that it will not subsequently be recovered by more advanced methods? The industry is continually studying underground conditions by core analysis, gas injection, water drive, pressure-temperature surveys, and by other means in order to determine the best operating practices. The industry is anxious and eager to adopt any new practice which will conserve our oil and gas supply or reduce our costs.

Mr. COLE. Let me ask you at that point: There is nothing in the California law to prevent underground waste, is there?

Mr. CRANSON. Yes, sir.

Mr. COLE. What?

Mr. CRANSON. There is a provision of the California law for control of gas. I will come to that later in the paper. It prevents the blowing of gas into the air, and it provides for the proper setting of casing so as not to allow the infiltration of water into the oil sand, nor to allow the infiltration oil into the water sands. There is also a provision for well spacing.

Mr. COLE. Is that enforced?

Mr. CRANSON. Yes; they are enforced as much as the State feels like enforcing them.

Mr. COLE. Well, that is a very important provision of your law, is it not?

Mr. CRANSON. Yes, sir; I think they are all very important provisions.

Mr. COLE. A State without such a statute, an oil-producing State, in your opinion, should have one?

Mr. CRANSON. Yes, sir. I am very much in favor of the State law. In fact, I have been in favor of every law introduced in this State for the control of oil production.

Mr. COLE. All right.

Mr. PEARSON. Including also the Atkinson law?

Mr. CRANSON. Yes, sir; also including the Atkinson bill. And I also may say that I was in favor of the Wagy Act, when it became apparent that one of them could not pass and the other might pass I favored that one also.

Mr. COLE. Why did you favor the Atkinson bill?

Mr. CRANSON. I believe at the present time that our oil industry in California is in very excellent condition. At the present moment, in my opinion, there is no immediate demand for a control bill today. If, however, a new field should be brought in tomorrow to throw a lot of additional crude oil on the market, we probably would need some other means, at least temporarily, of controlling that situation, in order to keep a proper balance between supply and demand.

Another thing, referring to the trade agreement with Japan, which expires on the 26th of this month, I believe if we were not permitted to ship any more oil to Japan some hundred thousands of barrels of crude-oil production would be thrown on the open market, put in storage, or retained in the ground, and I am not certain that our voluntary system would be able to handle such a flow immediately. Obviously, it would mean the shutting down of wells and laying off of a great many men.

Another thing we are faced with is the drilling of too many wells, or at least what appears to be the drilling of too many wells for the present good of the industry. We are putting a great deal of capital back into the ground, and it takes a long time to get it out. Of course, that is economic, but we are completing roughly 100 new wells a month, wells of large capacity, which develop potentials totaling 90,000 to 100,000 barrels daily. Each month we have to take care of those new wells. It means cutting down the amount of oil given to each well. One of these days, if we keep this drilling program going, we are liable to be faced with a situation where some operator says, "I cannot produce and drill wells for 50 or 100 barrels of oil per day," or whatever it may be, and, "therefore I am not going to abide by voluntary curtailment. I have to have 500 barrels a day out of every well I drill." If we had a State law, that would not be possible, because we would be controlled as to production and also probably as to drilling.

I am looking more to the future and am assuming a more or less over-all viewpoint. It is a fact we are in excellent condition but no one knows when one of these things or perhaps others may upset our program, for a while at least.

Does that explain my position?

Mr. COLE. Yes.

Mr. WOLVERTON. You made some slight reference to the Japanese situation. To what extent are you informed as to the amount of oil being shipped to Japan and Russia, and the price they pay for it?

Mr. CRANSON. Mr. Wolverton, I am not very familiar with that subject. I do know we are shipping oil to Japan. I believe the average would be 80,000 barrels daily or something in that neighborhood,

maybe more. It fluctuates from week to week and month to month, depending to some extent upon tankers being available, I suppose. I understand there is some consideration of placing an embargo on that oil, thus eliminating the shipping of oil to Japan. I might state I am entirely in approval of Congress' right to establish trade agreements with various countries. I think they are essential and if during negotiations with other countries it is necessary to change our oil shipments and oil supply slightly, I believe that is in their power, however personally I might not agree with what Congress does at the time. If, however, all of our oil supply, or a great part of it now sold to the other nations was to be cut off because of the fact that we want to keep it at home for a reserve, I would disagree with that policy. As long as we have reserves facing us such as we have now, and I fully believe our total reserves in the United States have not been scratched—I think new methods are going to continue to locate new fields. In fact, our problem now seems to me to be too much oil and not too little. So, as I say, I would be opposed to a policy being set up by the Federal Government to eliminate the shipment of oil to foreign countries for the purpose of maintaining our oil here, but I am in favor of the trade agreements which might in some way reduce our amounts, if it involves bettering our trade conditions with other countries.

Mr. WOLVERTON. What is the attitude of your association or of the oil industry, if you can speak for it, with respect to an embargo on oil and gasoline being sent to Japan to annihilate the defenseless Chinese and to Russia to bring the Finns into subjection?

Mr. CRANSON. I do not believe that I would want to speak for the oil industry or for the association I am with on that topic. I might merely state my own feelings, that if we do not send the oil to Japan the chances are they would get it from somewhere else. I do not believe there is any more reason to stop the sending of oil to Japan than there is of stopping the sending of iron ore or copper which goes into the making of shells and war materials, or any other of our natural resources.

Mr. WOLVERTON. Well, we do not have the other people before us and we do not have the ammunition people that you refer to, but we do have oil people here before us, and we can only direct our questions to them. I am not going to ask the oil people to tell me what the ammunition people are going to do, or any other group, but I would like to know what the attitude of the oil industry is toward a possible embargo that would eliminate the shipment of high octane gas that puts the bombers in the air from which are thrown bombs on defenseless people. We may be called upon in Congress to pass upon that question.

I have heard directly and indirectly that there are petitions being signed all over the country, addressed to Congress, and that will be presented to Congress at a later date, calling on Congress to stop this slaughter of innocent people so far as we are now participating in it.

For instance, I understand from one of your newsprints here that one of your oil companies at Christmas time had its oil derricks all trimmed up like a Christmas tree to spread the Christmas spirit, and at the same time they were pumping oil at those same derricks to send over to Japan and to Russia to kill the Finns and destroy the Chinese. I want to find out what the attitude of the oil industry is. Is it really

the Christmas spirit that you have or the unhumanitarian idea to kill people so long as you get paid for doing it?

Mr. CRANSON. Well, Mr. Wolverton, I have given you my thoughts in the matter, and I am not able to speak for the oil industry or even the Oil Producers Agency.

Mr. WOLVERTON. I do not want you to feel that I am taking my personal feelings out on you, because you seem to be an inoffensive individual, and I certainly do not want you to interpret my words as any indication of my feelings toward you.

I am sorry that I was a little late this morning and was not present when Mr. Pemberton put in a statement in which he stated that the high-octane gas was not being transported to other countries. I would like to have seen how much he knows about it. I don't know where he went to school last night, but he did not know anything about it yesterday. [Laughter.]

The point I am making is this: We hold ourselves out as a great Christian humanitarian Nation and yet we ship abroad the very commodities that enable the nations we condemn to do the very things that we condemn, and the only answer has been so far, if I am able to judge from what little has been said here, is, "Well, if we don't sell it to them, somebody else will sell it to them." Therefore that is offered to justify the killing of thousands of innocent Chinese and Finns, and it ties California, if I may speak of it without offense to the people of this great State, it ties California through its royalties right up to Nazi Germany and to Japan and to Russia, because, if I understand it correctly, every barrel of oil that goes out of here that California has a part in, there is a royalty that comes to the State.

Now, with these petitions that are going to be presented to Congress, as long as we are talking to the oil industry here, I think it would be mighty helpful to us if the oil industry would indicate to us what its attitude is toward the selling not only of oil but particularly high-octane gas to the countries that are using it for purposes that we condemn. Do you know anybody in your association or anybody else outside of Mr. Pemberton that knows anything about it?

Mr. CRANSON. No, sir; I am afraid that I do not.

Mr. WOLVERTON. I hear that they are not only selling oil to Japan but that they sell it cheaper to Japan than they do to our own people in this country. Do you know anything about that?

Mr. CRANSON. No, sir; I don't know what price the oil is sold for.

Mr. WOLVERTON. I would like to get somebody stirred up to the point where they would give us that kind of information, namely, whether there is a different price structure for the sale of oil and gasoline for the destruction of human life than there is for domestic uses in this country.

Mr. CRANSON. There should not be. Of course, there are times when petroleum may be sold at a little lesser price on account of the large bulk shipments or something of that sort, but I think the prices should be ordinarily the same.

Mr. WOLVERTON. From the information that I have, on Christmas Eve, when the reindeer were going up and down on the derricks out here, you sent 500,000 barrels of oil across the water to Japan. Maybe that figure is just a little large. I do not know. But no matter what the correct figure is, it was too much, in my opinion.

Mr. CRANSON. Mr. Wolverton, there is one thing I do not believe anybody in the oil industry is anxious to help to kill the Chinese or anything like that, but there is one thing that they do have in their mind, in wanting to dispose of their products, and that is looking after their own people here, our own personnel. If we should shut down 100,000 barrels of production a day, do you realize what it would mean to our industry, or what it would mean to throw hundreds of people out of work?

Mr. WOLVERTON. You are not arguing from that, that we ought to keep people at work here in order to kill people in China and Finland, are you?

Mr. CRANSON. No; I am merely saying that I believe the attitude of the oil industry is to try to protect its own people by disposing of its products wherever it may at reasonable prices. We would suffer tremendously if our markets were cut off.

Mr. WOLVERTON. Well, I was told by a certain individual that if you would cut the sale of oil off to Japan and Russia—to use his expression, or the expression that was given to me, “It would raise hell with the oil industry in California.” Now that is a very unfortunate viewpoint, in my opinion, if that guides you in keeping men at work here to destroy the lives of innocent people abroad.

Mr. COLE. All right, Mr. Cranston, let us get along.

Mr. CRANSON. The next subject is well spacing. Proper spacing of wells has long received the study of the operator, and the tendency in California in general has been toward decreasing the well density. The problem is probably more of an economic than a conservation nature, but in my opinion the two are inseparable. The operator realizes that adoption of a 20-acre spacing as against a 10-acre spacing will result in an expenditure only about half as great. He would prefer to defer any closer spacing until he is convinced that the reservoir should be drilled to greater density. He can always drill additional wells, but an overinvestment in them can never be recovered. The public must pay eventually for such overinvestment in the form of increased prices for products or in decreased earnings. I do not believe that we can yet determine the optimum well spacing for any field, but I am convinced that once again we are heading in the proper direction and will ultimately arrive at a practical answer.

I wish to call the committee's attention to the very marked development of wider well spacing in California in recent years and point out that there are now 16 fields being developed on a density of one well to 20 acres, and that there are three fields in which a particular zone is developed on a similar basis. The present potential of these 19 fields is 1,006,182 barrels of oil per day out of a total potential of the State of 2,586,411 barrels per day. A significant part of this analysis is that these fields developed recently on a wide spacing basis have 38.9 percent of the potential of the State. The fields above referred to are oil fields. In addition, there are gas fields in the State which are developed on a basis of from one-well-to-40 acres up to as high as one-well-to-160 acres.

Accepted oil-leasing practice was for years 1 well to each 10 acres, and this included Government leases. Practically all lease forms now provide for not in excess of 1 well to 20 acres, and many permit of wider spacing.

The life of many leases, including Government leases, have been extended beyond the old 20-year periods in order to permit more reasonable drilling and producing rates, thus aiding conservation.

V. CALIFORNIA STATE LAWS REGARDING THE CONSERVATION OF OIL AND GAS

Under date of June 10, 1915, an act to establish a public resources code for the State of California was passed by the legislature and became law. This act has been amended from time to time in order to properly protect the public interest.

Division III of section 8-B of said act applies to oil and gas, and the State division of oil and gas was formed to administer this part of the act. I will quote from and explain briefly the effects of said legislation.

Chapter I is titled "Oil and gas conservation." Article 2, in part, reads as follows:

The supervisor shall so supervise the drilling, operation, maintenance, and abandonment of wells as to prevent, as far as possible, damage to underground oil and gas deposits from infiltrating water and other causes, loss of oil and gas, and damage to underground and surface waters suitable for irrigation or domestic purposes by the infiltration of, or the addition of, detrimental substances, by reason of the drilling, operation, maintenance, or abandonment of wells.

A district deputy in each district, designated by the supervisor, shall collect all necessary information regarding the oil and gas wells in the district, with a view to determining the presence and source of water in the oil sands and the location and extent of strata bearing water suitable for irrigation or domestic purposes that might be affected. He shall prepare maps and other accessories necessary to determine the presence and source of water in the oil sands and the location and extent of strata bearing water suitable for irrigation or domestic purposes or surface water suitable for such purposes. This work shall be done with the view to advising the operators as to the best means of protecting the oil and gas sands and the water-bearing strata and surface water, and with a view to aiding the supervisor in ordering tests or repair work at wells. All this data shall be kept on file in the office of the district deputy of the respective district.

This article makes it mandatory that the supervisor obtain data on every well drilled in the State of California and that he use his best ability to prevent underground waste in every well in the State.

Well, I will omit the reading of the next part of this, which provides for the State being divided into six oil and gas districts over each of which is a deputy supervisor for the district and also a commission consisting of producers, so that it is run by the State with the cooperation of the representatives of the industry.

This article makes it mandatory that the supervisor obtain data on every well drilled in the State of California and that he use his best ability to prevent underground waste in every well in the State.

Article 3 provides, among other things, for the State being divided into six districts with each district in charge of a deputy oil and gas supervisor who shall be aided in solving problems within his district by from five to seven oil and gas commissioners elected from oil and gas operators within his district. Well, that is part of what I have already told you.

Article 4 provided, in part, as follows:

The owner or operator of any well shall, before commencing the work of drilling the well, file with the supervisor or the district deputy a written notice of intention to commence drilling. The notice shall contain the following:

(a) The location and elevation above sea level of the floor of the proposed derrick and drill rig.

(b) The number or other designation by which the well shall be known.

(c) The owner's or operator's estimate of the depth of the point at which water will be shut off, together with the method by which the shut-off is intended to be made, and the size and weight of casing to be used.

(d) The owner's or operator's estimate of the depth at which oil- or gas-producing sand or formation will be encountered.

After the completion of any well the provisions of this section shall also apply, as far as may be, to the deepening or redrilling of the well, or any operation involving the plugging of the well, or any operations permanently altering in any manner the casing of the well. The number or designation by which any well heretofore drilled has been known, and the number or designation specified for any well in a notice filed as required by section 3203, shall not be changed without first obtaining a written consent of the supervisor.

Every person who engages in the drilling, redrilling, or deepening of any well shall file with the supervisor an indemnity bond in the sum of \$5,000 for each well drilled, redrilled, or deepened.

A well is properly completed, for the purposes of sections 3206 and 3207, when it has been completed to production of oil or gas, and the person engaged in drilling, redrilling, or deepening it has shown to the satisfaction of the supervisor that both the manner of drilling, redrilling, or deepening the well and the manner of producing oil therefrom are satisfactory. A well is properly abandoned when drilling, redrilling, or deepening has ceased before completion to production of oil or gas, and the person drilling, redrilling, or deepening it has shown to the satisfaction of the supervisor that all proper steps have been taken to shut off and exclude all water from oil-bearing or gas-bearing strata encountered in the well, and to protect underground or surface water suitable for irrigation or farm or domestic purposes from the infiltration or addition of any detrimental substance.

The supervisor shall order such tests or remedial work as in his judgment are necessary to protect oil and gas deposits from damage by underground water, or to prevent the escape of water into underground formations, or to prevent the infiltration of detrimental substances into underground or surface water suitable for irrigation or domestic purposes, to the best interests of the neighboring property owners and the public. * * *

Every person producing oil or gas in the State shall file with the supervisor, on or before the 10th day of each month, for the last preceding calendar month, a statement in such form as the supervisor may designate, showing:

(a) The amount of oil and gas produced from each well during the period indicated, together with the gravity of the oil, the amount of water produced from each well, estimated in accordance with methods approved by the supervisor, and the number of days during which fluid was produced from each well.

(b) The number of wells drilling, producing, or idle, owned or operated by such person.

(c) What disposition was made of the gas produced from each well, including the names of persons, if any, to whom the gas was delivered, and such other information regarding the gas and the disposition thereof as the supervisor may require.

Article 5 is titled "Unreasonable waste of gas," and reads in part as follows:

The unreasonable waste of natural gas by the act, omission, sufferance, or insistence of the lessor, lessee, or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from the gas, is opposed to the public interest and is unlawful. The blowing, release, or escape of the gas into the air shall be prima facie evidence of unreasonable waste.

Whenever the supervisor finds that it is in the interest of the protection of oil or gas from unreasonable waste, the lessors, lessees, operators, or other persons owning or controlling royalty or other interests in the separate properties of the same producing or prospective oil or gas field, may, with the approval of the supervisor, enter into agreements for the purpose of bringing about the cooperative development and operation of all or a part or parts of the field, or for the purpose of bringing about the development or operation of all or a part or parts of such field as a unit, or for the purpose of fixing the time, location, and manner of drilling and operating of wells for the production of oil or gas, or providing for the return of gas into the subsurface of the earth for the purpose of storage

or the repressuring of an oil or gas field. Any such agreement shall bind the successors and assigns of the parties thereto in the land affected thereby, and shall be enforceable in an action for specific performance.

Now here is a paragraph relative to gas and oil ratio:

If it appears that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power, or any other industrial purpose, and if it appears that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells, and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas, the supervisor shall hold that such excess production of gas is unreasonable waste, if such a holding will not cause an unreasonable waste of gas in any other field.

Now, that is the provision that provides for the control of gas and oil ratio.

Chapter 3 provides for certain limitations regarding the spacing of wells on small tracts of land. I will summarize the provisions of the act thus:

- (1) Proper drilling of wells and protection of oil and gas reserves.
- (2) Proper protection of reservoir energy and prevention of underground waste.
- (3) Prohibition of gas waste.
- (4) Filing of adequate records respecting drilling and producing operations.

A copy of division III of the act of June 10, 1915, is attached hereto and made a part hereof. That this law has been a very effective conservation measure is evidenced by the large reductions in blown gas subsequent to 1930, when the gas conservation provisions were enacted and enforced.

You will notice one of those charts indicates there has been a very marked substantial reduction in gas blown in the air since this act became effective and was enforced.

VI. CONCLUSIONS AND SUMMARY

1. Unutilized or blown gas for total California has been reduced from 39.5 percent in 1930 to about 7.3 percent average for the years 1935 to 1939, inclusive. This is a marked accomplishment.

2. The very important fields of Kettleman North Dome, North Belridge, and Ventura Avenue produce approximately 50 percent of the State's gas.

Kettleman has reduced its unutilized gas from 39.34 percent in 1930 to 1.41 percent in 1939.

North Belridge reduced its unutilized gas from 78.5 percent in 1930 to 3.7 percent in 1939.

Ventura Avenue reduced its unutilized gas from 20.4 percent in 1930 to 2.3 percent in 1939.

From 1930 to 1939, inclusive, about 80,000,000 M. C. F. were stored or injected into oil horizons. This amount is equal to approximately three times the amount of gas blown during 1939. These great reductions in volume of unutilized gas were accomplished through the cooperative efforts of a majority of the operators, together with the operation of the California State Conservation Act.

3. Surface waste of oil at the present time is practically negligible. Underground waste of oil and gas is questionable of determination, but abundant study is being conducted in efforts to determine and eliminate such losses. Our operating practices are improving rapidly and our losses should therefore decrease steadily.

4. The present practice is toward wider spacing of wells and is conducive to conservation.

5. California has an effective conservation law which—

Mr. COLE. Just at the end of 4. I am reading from a paper prepared by Mr. Marshal to which I referred yesterday.

Mr. CRANSON. Mr. Marshal?

Mr. COLE. Howard Marshal; Legal History of Conservation of Oil and Gas in California, published in December of 1938 by the section of mineral law of the American Bar Association. Referring to the amendment, section 8, authorizing unit operation, Mr. Marshal states:

But since the difficulties of promoting unit operation or cooperative development have been primarily practical rather than legal virtually nothing has been thus far accomplished under this enabling legislation.

Do you agree with that?

Mr. CRANSON. No, sir; I do not. My company alone is interested, I think, in approximately eight unit plants, several cooperative plants, one of which is the Buena Vista Hills, Naval Reserve No. 2.

Mr. COLE. And that has taken place since 1938?

Mr. CRANSON. No, sir. Kettleman Hills is another; that is a unit plan, and all of these plans have to be approved by the supervisor pursuant to the terms of this act. We are working on another plan now which I believe is going to be consummated in the near future. An operation at Coalinga which we recently became interested in is operating under a cooperative agreement which went into effect last year. Part of that land is—

Mr. COLE. One of the principal amendments to the State law which we are discussing is, as I recall it, section 8b, which provides:

The unreasonable waste of natural gas, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited, and that the blowing of natural gas into the air shall be prima facie evidence of unreasonable waste.

That is a provision of the State law.

Mr. CRANSON. Yes, sir.

Mr. COLE. And do you adopt the same views as to gasoline?

Mr. CRANSON. Wasting of gasoline into the air?

Mr. COLE. Yes.

Mr. CRANSON. Yes, sir; I do.

Mr. COLE. And underground waste also?

Mr. CRANSON. Yes.

Mr. COLE. That is a declaration of policy for legislation of this character as opposed to the public interest, the general public interest, and I assume it has reference not only to California but to the Nation as a whole?

Mr. CRANSON. Yes, sir; I believe that State laws refer to the public interest of the Nation as a whole; but it is also in the interest of the oil industry, which, in my opinion, is still the public interest—for

there you have the stockholders and the personnel, who are certainly a part of the public.

Mr. COLE. All right, sir. You were reading 5.

Mr. CRANSON. Yes, sir. California has an effective conservation law which prohibits gas waste, provides for control of gas-oil ratios, prohibits improper drilling or abandonment of wells, provides for proper keeping of records of drilling and production, and which permits operators to enter into unit and cooperative agreements.

6. I do not believe that H. R. 7372 would benefit California, or, for that matter, any of the other oil-producing States or the public. We are improving our practices and our efficiency of operation constantly, and we do not need H. R. 7372 to enforce the adoption of these improvements. The act as written is very arbitrary, does not permit recourse to the courts of law, places unrestricted power in the hands of the Commissioner, would inflict a great burden upon the public and the industry in the form of administrative costs, and probably could not be properly administered from a practical operating standpoint.

STATEMENT OF L. A. CRANSON BEFORE A SUBCOMMITTEE OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE OF THE HOUSE OF REPRESENTATIVES AT HEARINGS IN LOS ANGELES ON PROPOSED BILL H. R. 7372

My name is Lorin Alvin Cranston. I am vice president and a director of Honolulu Oil Corporation, whose head office is located in San Francisco, Calif. My company has properties and producing wells in several California fields, in Texas, and in Wyoming. I am also a director of the Kettleman North Dome Association in California.

I have been actively engaged in the oil business since 1922, and have worked in field operation, geology, petroleum engineering, have served in curtailment or proration work, and have been in the San Francisco office of the company since 1932.

I graduated from Stanford University with the degree of A. B. in geology in 1922.

I intend to place before you gentlemen in a general and brief manner, supported by some statistics, my ideas with respect to waste in connection with the California oil industry. The topics will be as follows:

- I. Gas waste.
- II. Oil waste.
- III. Waste of reservoir energy—Underground waste.
- IV. Well spacing.
- V. California State laws regarding conservation of oil and gas.
- VI. Conclusions and summary.

I. GAS WASTE IN THE CALIFORNIA OIL INDUSTRY

What constitutes waste and what constitutes conservation in the oil industry? Complete definitions of these terms are impossible. Our duty, in the light of our present knowledge, is to utilize petroleum and its products in a proper manner, to apply the most effective known methods of recovery with respect both to producing and refining operations, and to continue, as we have in the past, our active search for more efficient methods of recovery and utilization. I believe that we are performing this duty in a remarkable manner.

Gas waste may be considered to fall into two types; namely, avoidable waste and unavoidable waste. Most gas waste in California has been unavoidable at the time it took place, for the gas was produced along with the oil as a byproduct and there was a market for the oil but none for the gas. It must be kept in mind that our gas markets have been expanding at a very rapid rate, and the development of additional uses for gas has helped materially in solving the problem of utilization of our gas.

The problem of waste will be found to exist in all industries.

We cannot employ ideas and equipment which are yet unknown, and we can always look backward and see the savings which could have been made by the use of modern methods. If we could likewise look into the future, we would no doubt be surprised by the inefficiency of our present practices. I might refer to one well located upon one of our own properties in Buena Vista Hills which was completed about 1914. This well blew the surface fittings away and flowed wide open to the air for many years. Some iron sheets and timbers were thrown over the mouth of the well to prevent excessive spraying of oil. The oil ran into a surface sump and was then run to shipping tanks. The gas and gasoline were thus wasted to the air for many years. This practice was not considered extraordinarily bad at the time because of lack of knowledge of gasoline manufacture from wet gas, together with the scarcity of markets for these products. We had little, if any, knowledge at that time of the part played by gas in the recovery of oil.

I say, therefore, that most loss of gas might be termed unavoidable loss at the time such loss took place. It is true that there are other losses than blow to the air. There are pipe-line losses, losses from oil tanks, compressor or plant losses, underground losses, etc. These have been greatly reduced by modern practices, and will no doubt be further reduced as our efficiency continues to increase.

I have incorporated at this point data sheets and graphic charts which show pertinent gas statistics for the State as a whole, and for three important gas and oil producing fields; namely, Kettleman North Dome, Ventura Avenue, and North Belridge. These three fields are currently producing approximately 50 percent of the total State gas production. I would also include the fields of Montebello and Wilmington, but I have been advised that these fields will be discussed by others to appear before your committee.

The data are for the period 1930 to 1939—11 months—inclusive, and show in each case total gas produced annually, total gas blown to the air annually, and the percentage of total gas production blown to the air annually. Oil production is shown on the data sheets but not on the charts.

(Chart, map referred to filed with the committee.)

State total—Oil and gas production and gas blown to air, gas injected into ground

[Oil in barrels—gas in M cubic feet]

Year	Oil produced	Formation wet gas	Gas blown to air		Gas stored in ground ¹	
			M cubic feet	Percent	M cubic feet	Percent
1930.....	228, 099, 899	544, 637, 178	215, 498, 198	39.5	15, 304, 569	2.8
1931.....	188, 829, 032	385, 201, 279	68, 478, 271	17.7	10, 396, 932	2.7
1932.....	178, 127, 794	276, 876, 849	17, 510, 810	6.3	12, 243, 047	4.4
1933.....	173, 083, 319	270, 059, 599	12, 183, 559	4.5	6, 184, 777	2.3
1934.....	175, 508, 566	281, 354, 810	16, 720, 038	5.9	3, 861, 579	1.4
1935.....	207, 832, 131	304, 867, 490	19, 374, 719	6.3	3, 892, 560	1.3
1936.....	214, 773, 315	327, 170, 487	24, 028, 905	7.3	9, 771, 901	3.0
1937.....	238, 520, 383	335, 338, 369	15, 987, 070	4.7	4, 998, 382	1.5
1938.....	249, 749, 246	350, 666, 806	33, 764, 693	9.6	8, 645, 262	2.5
1939.....	205, 357, 433	313, 634, 897	27, 613, 516	8.8	5, 538, 211	1.8
Total.....	2, 059, 881, 118	3, 389, 807, 764	451, 159, 779	13.3	80, 837, 220	2.4

¹ Stored gas is either stored in closed reservoir or injected into oil zone.

1939, 11 months only.

Oil figures, American Petroleum Institute. Gas figures, California Natural Gas Association.

Kettleman North Dome oil field—Oil and gas production and gas blown to air

[Oil in barrels—gas in M cubic feet]

Year	Oil produced	Formation wet gas	Gas blown to air	
			M cubic feet	Percent
1930.....	6,171,080	157,092,848	108,929,320	69.34
1931.....	17,537,345	137,656,356	38,989,134	28.32
1932.....	21,965,462	98,966,118	6,799,623	6.86
1933.....	21,511,834	104,426,490	2,882,100	2.75
1934.....	21,263,223	115,728,506	2,764,314	2.39
1935.....	27,562,036	121,080,043	3,460,935	2.86
1936.....	29,157,066	109,048,329	2,208,250	2.03
1937.....	29,669,581	115,417,706	3,754,896	3.25
1938.....	25,587,138	114,624,111	5,870,740	5.12
1939.....	17,929,617	91,951,709	1,293,501	1.41
Total.....	217,754,382	1,165,992,216	176,952,903	-----

1939, 11 months only.

Oil figures, American Petroleum Institute. Gas figures, California Natural Gas Association.

Ventura Avenue—Oil and gas production and gas blown to air, gas injected into ground

[Oil in barrels. Gas in M cubic feet]

Year	Oil produced	Formation wet gas	Gas blown to air		Gas stored in ground ¹	
			M cubic feet	Percent	M cubic feet	Percent
1930.....	17,493,155	59,026,898	12,051,643	20.4	616,412	1.0
1931.....	15,255,256	56,868,819	10,603,661	18.7	177,442	.3
1932.....	12,332,853	40,319,944	4,377,247	10.9	108,477	.3
1933.....	12,576,208	38,962,811	1,362,437	3.5	38,645	.1
1934.....	9,882,614	39,507,613	618,247	1.6	-----	-----
1935.....	10,979,450	37,720,439	612,228	1.6	-----	-----
1936.....	12,609,878	38,701,007	845,662	2.2	75,336	.2
1937.....	12,685,048	37,811,002	462,293	1.2	-----	-----
1938.....	12,925,543	36,983,327	737,913	2.0	-----	-----
1939.....	11,906,205	33,740,901	766,859	2.3	-----	-----
Total.....	128,646,210	419,642,761	32,438,190	7.73	1,016,312	.24

¹ Stored gas is either stored in closed reservoir or injected into oil zone.

1939, 11 months only.

Oil figures, American Petroleum Institute. Gas figures, California Natural Gas Association.

Belridge—Oil and gas production and gas blown to air, gas injected into ground

[Oil in barrels. Gas in M cubic feet]

Year	Oil produced	Formation wet gas	Gas blown to air		Gas stored in ground	
			M cubic feet	Percent	M cubic feet	Percent
1930.....	-----	4,789,815	3,759,714	78.5	257,930	5.4
1931.....	-----	8,633,861	1,135,598	13.2	1,848,429	21.4
1932.....	-----	8,093,745	4,020,099	49.7	327,578	4.1
1933.....	-----	5,806,269	70,750	1.2	788,437	13.6
1934.....	-----	4,891,689	125,147	2.6	135,083	2.8
1935.....	2,192,772	13,340,484	1,746,056	13.1	-----	-----
1936.....	2,713,426	36,118,987	1,446,644	4.0	906,236	2.5
1937.....	3,916,963	42,217,912	1,212,129	2.9	871,522	2.1
1938.....	5,693,168	40,979,599	3,565,744	8.7	3,352,507	8.2
1939.....	4,870,069	39,408,032	1,440,284	3.7	1,858,912	4.7
Total.....	3,996,117	204,280,393	18,522,165	9.07	10,344,878	5.06

1939, 11 months only.

Oil production for 1930 to 1933 inclusive was combined with Lost Hills production.

Stored gas is either stored in closed reservoir or injected into oil zone.

Oil figures, American Petroleum Institute. Gas figures, California Natural Gas Association.

CALIFORNIA STATE TOTAL

We will first consider the State as a whole. You will note that in 1930 the total amount of unutilized or blown gas amounted to about 215,500,000 M cubic feet, which was equal to 39.5 percent of the total production. For the period from 1935 to 1939, inclusive, however, the average percentage of unutilized gas has amounted to approximately 7.3 percent. Thus, remarkable strides in conservation have been made for the State as a whole, and the industry is working constantly to conserve all of the gas and to improve its use. It is not concerned with preventing blow alone, but is equally concerned with getting the greatest amount of work out of all of the gas. I will cite only one example of this; namely, gas storage and gas injection. Data relative to this phase are shown herewith. Gas storage and gas injected have not been broken down into their respective parts, nor have the data been segregated by fields. This is in the interest of brevity. Gas storage as a rule implies gas which has been stored in underground formations in order to prevent dissipation and to be withdrawn and used at a later date. Injected gas is gas which is injected into oil horizons for the purpose of assisting in the recovery of oil, gas, and gasoline. Both of these uses are conservation measures. These data show that during the period from 1930 to 1939 (11 months), inclusive, some 80,000,000 M cubic feet were handled in this manner. This is equivalent to 2.38 percent of the total production for the same period and is equal to about three times all of the gas blow for the State during the year 1939.

KETTLEMAN NORTH DOME OIL FIELD

The data for Kettleman North Dome oil field, located in Fresno and Kings Counties, Calif., indicate that in 1930 there was unutilized gas in the amount of approximately 108,000,000 M cubic feet, or about 69 percent of the total production for the year.

During the year of maximum oil production, 1936, when approximately 29,000,000 barrels were produced, the gas production was less than in 1930 by about 48,000,000 M cubic feet, while the blown gas amounted to only 2.03 percent. The volume of blown gas was slightly in excess of 2,000,000 M cubic feet as compared with 108,000,000 M cubic feet in 1930.

The 11-month period in 1939 shows that the unutilized gas was reduced to about 1,300,000 M cubic feet, or 1.41 percent of total production.

It is also pertinent to note that the gas-oil ratio was reduced from about 26,000 cubic feet per barrel in 1930 to 5,000 cubic feet per barrel in 1939.

These data, in my opinion, indicate remarkable progress in gas conservation and utilization. It should be noted also that Kettleman Hills is underlain by a very prolific and high-pressure Eocene gas and light oil stratum, and that gas from this zone is being used in the production of considerable quantities of Temblor zone oil. One recently consummated agreement covering a large portion of the south end of the field provides for maintaining gas-oil ratios at 3,000 cubic feet per barrel, which amounts to a reduction of 2,000 cubic feet per barrel below the present field average of 5,000 cubic feet.

NORTH BELBRIDGE OIL FIELD, KERN COUNTY, CALIF.

The gas data for the North Belridge oil field show that in the year 1930 the total gas production was approximately 4,800,000 M cubic feet, and that the gas blown amounted to about 3,750,000 M cubic feet, or about 78.5 percent. In 1931, some 50 percent of the production was not utilized, and in 1932 approximately 13 percent. The 11-month period of 1939 shows a blow of about 1,450,000 M cubic feet, equal to only 3.65 percent of the total production. The data also indicate that considerable gas has been injected into the formations. During the 1939 period approximately 1,850,000 M cubic feet, equal to 4.72 percent of the field production, was disposed of in this manner. These figures show that about 400,000 M cubic feet more gas was returned to the oil zones than was blown to the air. In my opinion, real conservation has been shown in this field.

VENTURA AVENUE OIL FIELD, VENTURA COUNTY, CALIF.

The Ventura Avenue oil field produced about 59,000,000 M cubic feet of gas in 1930, of which amount about 12,000,000 M cubic feet, or 20.42 percent, was unutilized. During 11 months of 1939, the field produced approximately

33,700,000 M cubic feet, of which some 760,000 M cubic feet, or 2.27 percent, was unutilized. The average gas blow for the last 6 years has been approximately 1.8 percent. This field has presented another outstanding example of the conservation of gas.

As stated above, the three fields discussed are producing approximately 50 percent of the State's gas. The present annual amount of their unutilized gas is about 3,500,000 M cubic feet, equivalent to approximately 2.2 percent of their total production. It is to be noted that one field, namely, Kettleman North Dome, has approximately 50 percent of its area operated in accordance with a unit agreement, and most of the remaining area is operated pursuant to the terms of a corollary agreement. Although the field's gas conservation record is excellent, it is about on a par with North Belridge and Ventura Avenue, where no such unit plans or operating agreements exist.

II. OIL WASTE IN CALIFORNIA, EXCLUSIVE OF UNDERGROUND WASTE

I do not know of any data from which accurate over-all statistics relative to surface waste of oil can be compiled so my statements will be general rather than specific. Some instances could be cited where sumps have broken, storage has burned, pipe lines have broken, wells have gotten away, etc., but these instances would not account for large volumes of oil as compared with total production, and should be, for the most part, classed as acts of God and therefore unavoidable. Much has been done, however, to prevent such losses, and they are now so rare as to be negligible.

Loss of oil through evaporation was at one time a major loss, but most evaporation losses are now prevented through proper separation of oil and gas, and by means of vapor recovery systems.

In years gone by, large quantities of oil were stored in unlined earthen sumps, and losses were large, both through evaporation and by seepage into the earth. This practice is practically nonexistent now except where small quantities of very heavy refinery residuum or extremely heavy low-grade crude are so stored. There is an instance of such storage at Santa Maria where undesirable cheap refinery residuum has been stored in earthen sumps. If losses occur they will be extremely low, for certainly no evaporation will take place, and very little seepage will accrue, due to the tarry character of the residuum. Santa Barbara County has passed an ordinance against such storage practice, and it should not take place in the future in that county.

Oil losses as a result of tank bleeding have been reduced to a minimum by automatic bleeding devices, chemical treatment of oil to break down emulsions, and more skillful operation. Any oil so escaping is commonly used to surface roads, or is picked up and reclaimed, and so is not lost.

In our recently developed and present developing, high gravity oil fields, a barrel of oil is never exposed to the air, but travels from well to refinery in a closed system. You can pass through such a field on an inspection trip and not see a single barrel of oil on its way from well to refinery. It is sometimes difficult to believe one is in an oil field, especially when the derricks are removed from the wells. The character and quantity of oil and the amounts of gas produced cannot be estimated by a trip through the field, but only through an examination of production data. We have progressed far from the days when a well flowed wide open into flow tanks, with tremendous evaporation losses, and with loss of all of the gas and casinghead gasoline.

III. WASTE OF RESERVOIR ENERGY—UNDERGROUND WASTE

The waste of reservoir energy which supposedly results in the underground waste or loss of hydrocarbons is a very controversial and difficult subject to handle except in a general manner. I know of no reliable statistics which set forth facts demonstrating that there have been positive known amounts of oil and/or gas lost through improper utilization of reservoir energy.

Not many years ago before our drilling technique had developed to its present scientific art, we, as at present, attempted to set our casings in wells in proper position to exclude water from our oil and gas zones, and to prevent the migration of oil and gas to formations where they might be lost either temporarily or permanently. Our efforts were sincere, but in many instances subsequent developments have indicated that we were in error. I know of one instance where we set at least \$1,000,000 worth of casing to protect a gas zone, only to find later that our results were extremely questionable. We were blundering in the right direction, but lacked sufficient data to do a perfect job. Modern

equipment and practices have enabled us to accomplish many of the constructive things which we have anticipated for years. We are now able to determine many of the characteristics of our reservoirs, to segregate our producing zones so as to greatly reduce or eliminate any migration between zones, to set our casings and place our cement so as to greatly minimize underground waste. Our research work in connection with fluid behavior under different types of reservoir conditions has provided us with important guides in determining efficient oil field practice. All operators are keenly aware of the desirability of conserving underground energy, and are conserving it to the best of their knowledge and insofar as conditions will permit. Efficiency is accelerating, and we can hope for much better results in the future.

Before the advent of the core barrel, core analysis, electrical logging devices, etc., we were forced to guess at the character and thickness of an oil zone from drillers' logs which were, as a rule, extremely inaccurate. Thus, we might assume an oil zone 100 feet thick to consist entirely of sand, and compute residual oil left in the formation on that basis. Core analysis, electrical logging, etc., might later reveal, however, that the assumed 100-foot sand zone was 50 percent shale, and that an additional 10 percent was very dense and impervious, and probably would yield little if any oil. We might subsequently find that the oil sand contained 30 percent of connate water in its pore space. This water did not migrate out of the sand so that we could account for it, but remained static there until careful core analysis revealed its presence. We would then be forced to revise our estimate of residual oil because if the pore space which was allotted to oil and gas contained 30 percent of water, then obviously the volume of estimated residual oil would have to be decreased by the amount of the connate water in the sand. We might find also that a barrel of oil in the well does not equal a barrel when raised to the surface, but shrinks to something less when the gas has been removed from it. Even though some oil is left in the formation when the gas is exhausted, do we know that it will not subsequently be recovered by more advanced methods? The industry is continually studying underground conditions by core analysis, gas injection, water drive, pressure temperature surveys, and by other means in order to determine the best operating practices. The industry is anxious and eager to adopt any new practice which will conserve our oil and gas supply or reduce our costs.

IV. WELL SPACING

Proper spacing of wells has long received the study of the operator, and the tendency in California in general has been toward decreasing the well density. The problem is probably more of an economic than a conservation nature, but in my opinion the two are inseparable. The operator realizes that adoption of a 20-acre spacing as against a 10-acre spacing will result in an expenditure only about half as great. He would prefer to defer any closer spacing until he is convinced that the reservoir should be drilled to greater density. He can always drill additional wells, but an overinvestment in them can never be recovered. The public must eventually pay for such overinvestment in the form of increased prices for products or in decreased earnings. I do not believe that we can yet determine the optimum well spacing for any field, but I am convinced that once again we are heading in the proper direction and will ultimately arrive at a practical answer.

I wish to call the committee's attention to the very marked development of wider well spacing in California in recent years and point out that there are now 16 fields being developed on a density of 1 well to 20 acres, and that there are 3 fields in which a particular zone is developed on a similar basis. The present potential of these 19 fields is 1,006,182 barrels of oil per day out of a total potential of the State of 2,586,411 barrels per day. A significant part of this analysis is that these fields developed recently on a wide spacing basis have 38.9 percent of the potential of the State. The fields above referred to are oil fields. In addition, there are gas fields in the State which are developed on a basis of from 1 well to 40 acres up to as high as 1 well to 160 acres.

Accepted oil-leasing practice was for years one well to each 10 acres, and this included Government leases. Practically all lease forms now provide for not in excess of one well to 20 acres, and many permit of wider spacing.

The life of many leases, including Government leases, have been extended beyond the old 20-year periods in order to permit more reasonable drilling and producing rates, thus aiding conservation.

V. CALIFORNIA STATE LAWS REGARDING THE CONSERVATION OF OIL AND GAS

Under date of June 10, 1915, an act to establish a public resources code for the State of California was passed by the legislature and became law. This act has been amended from time to time in order to properly protect the public interest.

Division III of section 8-B of said act applies to oil and gas, and the State division of oil and gas was formed to administer this part of the act. I will quote from and explain briefly the effects of said legislation.

Chapter I is titled "Oil and Gas Conservation." Article 2, in part, reads as follows:

"The supervisor shall so supervise the drilling, operation, maintenance, and abandonment of wells as to prevent, as far as possible, damage to underground oil and gas deposits from infiltrating water and other causes, loss of oil and gas, and damage to underground and surface waters suitable for irrigation or domestic purposes by the infiltration of, or the addition of, detrimental substances, by reason of the drilling, operation, maintenance, or abandonment of wells.

"A district deputy in each district, designated by the supervisor, shall collect all necessary information regarding the oil and gas wells in the district, with a view to determining the presence and source of water in the oil sands and the location and extent of strata bearing water suitable for irrigation or domestic purposes that might be affected. He shall prepare maps and other accessories necessary to determine the presence and source of water in the oil sands and the location and extent of strata bearing water suitable for irrigation or domestic purposes or surface water suitable for such purposes. This work shall be done with the view to advising the operators as to the best means of protecting the oil and gas sands and the water-bearing strata and surface water, and with a view to aiding the supervisor in ordering tests or repair work at wells. All this data shall be kept on file in the office of the district deputy of the respective district."

This article makes it mandatory that the supervisor obtain data on every well drilled in the State of California, and that he use his best ability to prevent underground waste in every well in the State.

Article 3 provides, among other things, for the State being divided into six districts with each district in charge of a deputy oil and gas supervisor who shall be aided in solving problems within his District by from five to seven oil and gas commissioners elected from oil and gas operators within his district.

Article 4 provides, in part, as follows:

"The owner or operator of any well shall, before commencing the work of drilling the well, file with the supervisor or the district deputy a written notice of intention to commence drilling. The notice shall contain the following:

"(a) The location and elevation above sea level of the floor of the proposed derrick and drill rig.

"(b) The number or other designation by which the well shall be known.

"(c) The owner's or operator's estimate of the depth of the point at which water will be shut off, together with the method by which the shut-off is intended to be made, and the size and weight of casing to be used.

"(d) The owner's or operator's estimate of the depth at which oil- or gas-producing sand or formation will be encountered.

"After the completion of any well the provision of this section shall also apply, as far as may be, to the deepening or redrilling of the well, or any operation involving the plugging of the well, or any operations permanently altering in any manner the casing of the well. The number or designation by which any well heretofore drilled has been known, and the number or designation specified for any well in a notice filed as required by section 3203, shall not be changed without first obtaining a written consent of the supervisor.

"Every person who engages in the drilling, redrilling, or deepening of any well shall file with the supervisor an indemnity bond in the sum of \$5,000 for each well drilled, redrilled, or deepened.

"A well is properly completed, for the purpose of sections 3206 and 3207, when it has been completed to production of oil or gas, and the person engaged in drilling, redrilling, or deepening it has shown to the satisfaction of the supervisor that both the manner of drilling, redrilling, or deepening the well and the manner of producing oil therefrom are satisfactory. A well is properly abandoned when drilling, redrilling, or deepening has ceased before completion to production of oil or gas, and the person drilling, redrilling, or deep-

ening it has shown to the satisfaction of the supervisor that all proper steps have been taken to shut off and exclude all water from oil-bearing and gas-bearing strata encountered in the well, and to protect underground or surface water suitable for irrigation or farm or domestic purposes from the infiltration or addition of any detrimental substance.

"The supervisor shall order such tests or remedial work as in his judgment are necessary to protect oil and gas deposits from damage by underground water, or to prevent the escape of water into underground formations, or to prevent the infiltration of detrimental substances into underground or surface water suitable for irrigation or domestic purposes, to the best interests of the neighboring property owners and the public. * * *

"Every person producing oil or gas in the State shall file with the supervisor, on or before the tenth day of each month, for the last preceding calendar month, a statement in such form as the supervisor may designate, showing:

"(a) The amount of oil and gas produced from each well during the period indicated, together with the gravity of the oil, the amount of water produced from each well, estimated in accordance with methods approved by the supervisor, and the number of days during which fluid was produced from each well.

"(b) The number of wells drilling, producing, or idle, owned or operated by such person.

"(c) What disposition was made of the gas produced from each well, including the names of persons, if any, to whom the gas was delivered, and such other information regarding the gas and the disposition thereof as the supervisor may require."

Article 5 is titled "Unreasonable Waste of Gas" and reads in part as follows:

"The unreasonable waste of natural gas by the acts, omission, sufferance, or insistence of the lessor, lessee, or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from the gas, is opposed to the public interest and is unlawful. The blowing, release, or escape of gas into the air shall be prima facie evidence of unreasonable waste.

"Whenever the supervisor finds that it is in the interest of the protection of oil or gas from unreasonable waste, the lessors, lessees, operators, or other persons owning or controlling royalty or other interests in the separate properties of the same producing or prospective oil or gas field, may, with the approval of the supervisor, enter into agreements for the purpose of bringing about the cooperative development and operation of all or a part or parts of the field, or for the purpose of bringing about the development or operation of all or a part or parts of such field as a unit, or for the purpose of fixing the time, location, and manner of drilling and operating of wells for the production of oil or gas, or providing for the return of gas into the subsurface of the earth for the purpose of storage or the repressuring of an oil or gas field. Any such agreement shall bind the successors and assigns of the parties thereto in the land affected thereby and shall be enforceable in an action for specific performance.

"If it appears that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power, or any other industrial purpose, and if it appears that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells, and that there are adequate gas pipe-line connections between such other wells and the place of utilization of such gas, the supervisor shall hold that such excess production of gas is unreasonable waste, if such a holding will not cause an unreasonable waste of gas in any other field."

Chapter 3 provides for certain limitations regarding the spacing of wells on small tracts of land.

From the above quotations and explanations, it is evident that California has a law which provides among other things for the following:

- (1) Proper drilling of wells and protection of oil and gas reserves.
- (2) Proper protection of reservoir energy and prevention of underground waste.
- (3) Prohibition of gas waste.
- (4) Filing of adequate records respecting drilling and producing operations.

A copy of division III of the act of June 10, 1915, is attached hereto and made a part hereof. That this law has been a very effective conservation measure is evidenced by the large reductions in blown gas subsequent to 1930, when the gas conservation provisions were enacted and enforced.

CALIFORNIA LAWS FOR CONSERVATION OF PETROLEUM AND GAS

Issued by Division of Oil and Gas, Ferry Building, San Francisco, R. D. Bush,
State Oil and Gas Supervisor

AN ACT To establish a Public Resources Code, thereby consolidating and revising the law relating to natural resources, the conservation, utilization, and supervision thereof, and matters incidental thereto, and to repeal certain acts and parts of acts specified herein
(Approved April 26, 1939, ch. 93; amended 1939, ch. 98; amended 1939, ch. 1113.)

The people of the State of California do enact as follows:

DIVISION III. OIL AND GAS

CHAPTER 1. OIL AND GAS CONSERVATION

Article 1. Definitions and General Provisions

3000. Unless the context otherwise requires, the definitions hereinafter set forth shall govern the construction of this chapter.

3001. "Department," in reference to the government of this State, means the Department of Natural Resources.

3002. "Division," in reference to the government of this State, means the Division of Oil and Gas in the Department of Natural Resources.

3003. "Director" means the Director of Natural Resources.

3004. "Supervisor" means the State Oil and Gas Supervisor.

3005. "Person" includes any individual, firm, association, corporation, or any other group or combination acting as a unit.

3006. "Oil" includes petroleum, and "petroleum" includes oil.

3007. "Gas" means natural gas coming from the earth.

3008. "Well" means any oil or gas well or well for the discovery of oil or gas, or any well on lands producing or reasonably presumed to contain oil or gas.

3009. "Operator" means any person drilling, maintaining, operating, pumping, or in control of any well.

3010. "Owner" includes "operator" when any well is operated or has been operated or is about to be operated by any person other than the owner.

3011. "Operator" includes "owner" when any well is or has been or is about to be operated by or under the direction of the owner.

3012. The provisions of this chapter apply to any land or well situated within the boundaries of an incorporated city in which the drilling of oil wells is now or may hereafter be prohibited, until all wells therein have been abandoned as provided in this chapter.

3013. This chapter shall be liberally construed to meet its purposes, and the director and the supervisor shall have all powers which may be necessary to carry out the purposes of this chapter.

Article 2. Administration

3101. The supervisor shall appoint one chief deputy and at least one district deputy for each of the districts provided for in this chapter, and shall prescribe their duties and fix their compensation.

3102. The Attorney General shall be the legal advisor for the division and shall perform or provide such legal services for the division as it may require. The cost of all such legal services shall be a charge against and shall be paid from the money or funds appropriated or made available by law for the support of the division. All money so paid shall be deposited in the State treasury to the credit and in augmentation of the current appropriation for the support of the Attorney General's office, to be expended in accordance with law, for the support of that office.

3103. The chief deputy shall be a competent engineer or geologist experienced in the development and production of oil.

3104. Each district deputy shall be either a competent engineer or geologist, experienced in the development and production of oil, or a competent and experienced oil operator, with not less than five years of actual experience in the oil fields of the State. At the time any district deputy is appointed, notice of his appointment shall be transmitted in writing to the board of commissioners of the district for which the deputy is appointed.

3105. An office under the supervision of a district deputy may be maintained in each district. The office shall be conveniently accessible to the oil and gas operators in the district, and it shall be open and a district deputy shall be present at certain specified times, which times shall be posted at the office.

3106. The supervisor shall so supervise the drilling, operation, maintenance, and abandonment of wells as to prevent, as far as possible, damage to underground oil and gas deposits from infiltrating water and other causes, loss of oil and gas, and damage to underground and surface waters suitable for irrigation or domestic purposes by the infiltration of, or the addition of, detrimental substances, by reason of the drilling, operation, maintenance, or abandonment of wells.

3107. A district deputy in each district, designated by the supervisor, shall collect all necessary information regarding the oil and gas wells in the district, with a view to determining the presence and source of water in the oil sands and the location and extent of strata bearing water suitable for irrigation or domestic purposes that might be affected. He shall prepare maps and other accessories necessary to determine the presence and source of water in the oil sands and the location and extent of strata bearing water suitable for irrigation or domestic purposes or surface water suitable for such purposes. This work shall be done with the view to advising the operators as to the best means of protecting the oil and gas sands and the water-bearing strata and surface water, and with a view to aiding the supervisor in ordering tests or repair work at wells. All this data shall be kept on file in the office of the district deputy of the respective district.

3108. On or before the first day of October of each year the supervisor shall make public, for the benefit of all interested persons, a report in writing showing:

(a) The total amounts of oil and gas produced in each county in the State during the previous calendar year.

(b) The total cost of the division for the previous fiscal year.

(c) The net amount remaining in the petroleum and gas fund available for the expenses of the succeeding fiscal year.

(d) The total amount delinquent and uncollected from any assessments or charges levied pursuant to this chapter.

The report shall also include such other information as the supervisor deems advisable.

3109. The supervisor may publish any publications, reports, maps, or other printed matter relating to oil and gas, for which there may be public demand. If these publications, reports, maps, or other printed matter are sold, they shall be sold at cost, and the proceeds shall be deposited to the credit of the petroleum and gas fund.

3110. All money paid to the State Treasurer pursuant to this chapter shall be deposited to the credit of the petroleum and gas fund, which fund is continued in existence. All money in the fund shall be expended under the direction of the department, for the purpose of this chapter upon warrants drawn by the Controller, upon demands made by the department, and audited by the Department of Finance.

All the money in the petroleum and gas fund at any time and from time to time is hereby appropriated and made available for the purpose of carrying out the provisions of this chapter.

3111. All money received in repayment of repair work done as provided in this chapter, shall be returned and credited to the petroleum and gas fund.

Article 3. Districts and District Oil and Gas Commissioners

3150. For the purposes of this chapter, the State is divided into six districts, as follows:

District number 1, the counties of Los Angeles, Riverside, Orange, San Diego, Imperial, and San Bernardino.

District number 2, the county of Ventura.

District number 3, the counties of Santa Barbara, San Luis Obispo, Monterey, Santa Cruz, San Benito, Santa Clara, Contra Costa, San Mateo, Alameda, and San Francisco.

District number 4, the counties of Tulare, Inyo, and Kern.

District number 5, the counties of Fresno, Madera, Kings, Mono, Mariposa, Merced, Stanislaus, and Tuolumne.

District number 6, all counties not included in any other district.

3151. There shall be district oil and gas commissioners for each district, as follows: For district number 1, five; for district number 2, five; for district number 3, five; for district number 4, seven; for district number 5, five; for district number 6, five.

The district commissioners shall be elected at the times and in the manner hereinafter provided. No person is eligible to be a district oil and gas commissioner who is not a resident of the district for which he is elected, nor who is not actually engaged in the business of oil or gas development or production within the district.

3152. The terms of office of district commissioners shall be three years each, from and after the first Monday in October of the year of their election, and until their respective successors are elected.

3153. The district commissioners in office at the time this chapter takes effect shall serve out the terms for which they were elected, which terms expire as follows:

(a) In districts having five commissioners, one in 1939, two in 1940, and two in 1941.

(b) In districts having seven commissioners, two in 1939, two in 1940, and three in 1941.

3154. On the third Tuesday in September in each year, at a meeting, the time and place in the respective districts and details of which shall be fixed by the supervisor, the successor of each district commissioner whose term of office expires that year shall be elected. At least two weeks' previous notice of the meeting shall be given by mail addressed to the post-office address or principal place of business of each of the persons entitled to vote for such district commissioners.

3155. District commissioners shall be elected by vote of the persons in that district who have been assessed and whose names appear on the last preceding record of assessments for the fund required to be raised by this chapter.

3156. Each of those entitled to vote may be represented by one person holding the written authority of such voter to act for him at the meeting. Each voter is entitled to one vote for each member of the board of district oil and gas commissioners who is to be selected for the district. In addition thereto, in each district, at elections to fill those offices the terms of which expire in 1941, and every three years thereafter, each voter is entitled to cast one vote for each such office for each one hundred dollars, or fraction thereof, which the voter has paid in accordance with his last assessment under this chapter.

In all subsequent elections the qualification of voters in the election of a district commissioner shall be the same as in the election of the district commissioner whose successor in office is being elected. The meeting shall select by ballot, by a majority vote of the votes represented, the number of persons specified in this article to act as district commissioners for the district.

3156.5. The first district oil and gas commissioners for district number 6 shall be elected at a meeting of the voters of the district on the third Tuesday in September 1939. The meeting shall be called by the State Oil and Gas Supervisor and the election shall be conducted in all respects as provided for district elections by this article, except that one district commissioner shall be elected for three years, two for two years, and two for one year, and the number of ballots cast for the commissioners to be elected for two-year terms shall be as provided by section 3156.

In the event that this section does not take effect before the third Tuesday in September 1939, the State Oil and Gas Supervisor shall call a meeting of the voters of district number 6, to be held upon the second Tuesday after the effective date of this section, at which meeting district oil and gas commissioners for district number 6 shall be elected in the manner and for the terms provided in this section.

3157. The chairman and secretary of the meeting shall issue a written certificate to the supervisor, setting forth the result of the election, and the name and address of each of the persons elected as a district oil and gas commissioner for the district.

Upon receipt of this certificate, the supervisor shall issue a certificate of election to the respective persons named as the district commissioners for the district for the period of three years from and after the first Monday in October of the year of their election, as shown in the certificate, and until their respective successors are elected.

3158. Within thirty days after the issuance of certificates of election by the supervisor, the district commissioners for each district shall meet at a time and place within the district to be designated by the supervisor, and shall there-

upon elect one of their number as chairman. The district deputy shall be ex officio secretary of the board. He shall keep a record of its proceedings, and his office shall be the office of the district commissioners.

3159. Each board of district commissioners may appoint one of its number as assistant secretary who shall, in the absence of the secretary, keep the minutes of the board and perform such further secretarial duties as the board by resolution, may direct.

3160. The district commissioners shall serve without compensation, except their necessary traveling expenses and other actual expenses incidental to their office.

The traveling expenses of the district commissioners, and all actual expenses incurred by or under the order of the district commissioners, in the hearing and determination and carrying out of orders appealed to them, shall be certified by the district deputy and the chairman of the board of district commissioners, to the supervisor, and when audited by him and by the Department of Finance, shall be paid from the petroleum and gas fund.

3161. In case of any litigation to which the board of oil and gas commissioners of any district is a party, the board may employ a competent attorney for each such litigation, and may fix his compensation, either before or after his services shall be concluded. His compensation, when certified by the chairman of the district board and by the Department of Finance, shall be paid from the petroleum and gas fund.

3162. In case of any hearing upon appeal before any board of district commissioners, they may employ a competent stenographer to take the testimony and proceedings. In case either party commences proceedings in the superior court, by writ of certiorari, from any order or decision of the board, it shall require the stenographer so employed to make a full transcript, and three additional copies, of the testimony and proceedings before the board. The original and one copy shall be for the use of the board. One copy shall be furnished to the supervisor, and one copy shall be furnished to the owner of the well in question. The cost and expense of employing any such stenographer, and the transcribing of his notes and making copies, shall be part of the expenses of the district commissioners and when certified by the chairman of the board, and audited by the Department of Finance, shall be paid from the petroleum and gas fund.

3163. Upon any subject in which any district commissioner is personally interested, or in which any person by whom he is employed is directly interested as a party, such district commissioner shall not be entitled to sit or vote.

3164. The board of district commissioners may call upon the supervisor for advice and for a written report upon any matter referred to the board. The supervisor may call meetings of the commissioners at the office of the district deputy, upon five days' written notice, to obtain their written advice upon any matters relating to his work within their district.

3165. All or any of the district commissioners may be recalled by a majority of the qualified votes of the district entitled to be voted for such district commissioners, respectively. In case a written petition, signed by not less than forty per cent of those entitled to vote as to the election of any district commissioner or commissioners, asking the recall of such district commissioner or commissioners, is filed in the office of the supervisor, the supervisor shall, within ten days thereafter, order and give notice of a special election in the district to fill the office or offices of the district commissioner or commissioners named in the petition for recall. The supervisor shall cause notice of the election to be given in the manner and for the time required for regular elections. The notice shall fix the time and place of the election. At the election, the district commissioner or commissioners named in the petition for recall shall be voted upon as though they were candidates for election for the unexpired portion of the term for which they, respectively, were originally elected, and any other candidate or candidates may, at the same time, be voted upon. A majority of all the qualified votes entitled to be voted for such district commissioners, respectively, are required to constitute an election. If less than a majority of all qualified votes are cast for any candidate, the recall fails as to the district commissioner concerning whose office the vote was taken; and if the district commissioner himself receives a majority of the votes, the recall fails. If the recall fails, the district commissioner shall continue to serve until the expiration of his term, as though the special election had not been held. But if any person other than the district commissioner receives a majority of the votes for the unexpired term, then the recall is effective and the office of the district commissioner recalled is vacant. Upon written certificate of election being filed with the supervisor, the person chosen and elected for the unexpired term shall become the successor of the

recalled district commissioner and a certificate of his election for such unexpired term shall be issued and transmitted to him by the supervisor. Like proceedings shall be had if more than one district commissioner is included in the petition for recall.

3166. In all recall elections, qualifications of voters and the number of votes which they will be entitled to cast shall be the same as they respectively were in the election of the district commissioner as to whom the recall election is being held.

3167. In case a vacancy as to the office of any district commissioner is caused by the death, resignation, removal from the district, or ceasing to be engaged in the business of development or production of oil or gas in the district, the vacancy shall be filled until the next annual election by the remaining commissioners of the district.

Article 4. Regulation of Operations

3200. Every owner or operator of any well shall designate an agent, giving his post-office address, who resides within the county where the well is located, upon whom all orders and notices provided in this chapter may be served. Every person so appointing an agent shall, within five days after the termination of any such agency, notify the supervisor or the district deputy, in writing, of such termination, and unless operations within the district are discontinued, shall appoint a new agent upon request of the supervisor.

3201. The owner or operator of any well shall notify the supervisor or the district deputy, in writing, in such form as the supervisor or the district deputy may direct, of the sale, assignment, transfer, conveyance, or exchange by the owner or operator of such well, and the land, owned or leased, upon which the well is located, within five days after such sale, assignment, transfer, conveyance, or exchange. The notice shall contain the following:

(a) The name and address of the person to whom such well was sold, assigned, transferred, conveyed, or exchanged.

(b) The name and location of the well.

(c) The date of the sale, assignment, transfer, conveyance, or exchange.

(d) The date when possession was relinquished by the owner or operator.

(e) A description of the land upon which the well is situated.

3202. Every person who acquires the ownership of any well, whether by purchase, transfer, assignment, conveyance, exchange, or otherwise, shall, within five days after acquiring the well and the land, owned or leased, upon which it is located, notify the supervisor or the district deputy, in writing, of his ownership. The notice shall contain the following:

(a) The name and address of the person from whom the well was acquired.

(b) The name and location of the well.

(c) The date of acquisition.

(d) The date when possession was acquired.

(e) A description of the land upon which the well is situated.

3203. The owner or operator of any well shall, before commencing the work of drilling the well, file with the supervisor or the district deputy a written notice of intention to commence drilling. The notice shall contain the following:

(a) The location and elevation above sea level of the floor of the proposed derrick and drill rig.

(b) The number or other designation by which the well shall be known.

(c) The owner's or operator's estimate of the depth of the point at which water will be shut off, together with the method by which the shut-off is intended to be made, and the size and weight of casing to be used.

(d) The owner's or operator's estimate of the depth at which oil- or gas-producing sand or formation will be encountered.

After the completion of any well the provisions of this section shall also apply, as far as may be, to the deepening or redrilling of the well, or any operation involving the plugging of the well, or any operations permanently altering in any manner the casing of the well. The number or designation by which any well heretofore drilled has been known, and the number or designation specified for any well in a notice filed as required by section 3203, shall not be changed without first obtaining a written consent of the supervisor.

3204. Every person who engages in the drilling, redrilling, or deepening of any well shall file with the supervisor an indemnity bond in the sum of five thousand dollars for each well drilled, redrilled, or deepened. The bond shall be filed with the supervisor at the time of the filing of the notice of intention to drill, redrill, or deepen provided for in section 3203. The bond shall be

executed by such person, as principal, and by an authorized surety company, as surety, conditioned that the principal named in the bond shall faithfully comply with all the provisions of this chapter, in drilling, redrilling, or deepening any well or wells covered by the bond, and shall secure the state against all losses, charges, and expenses incurred by it to obtain such compliance by the principal named in the bond.

The condition of the bond shall be stated in substantially the following language:

"If said -----, the above bounden principal, shall well and truly comply with all the provisions of chapter 1 of division III of the Public Resources Code and shall obey all lawful orders of the State Oil and Gas Supervisor, or his district deputy or deputies, if not appealed as provided in that chapter, or upon affirmance thereof by the board of district commissioners having jurisdiction thereof, if appealed thereto, and shall pay all charges, costs, and expenses incurred by the supervisor or his district deputy or deputies in respect of such well or wells or the property or properties of said principal, or assessed against such well or wells or the property or properties of such principal, in pursuance of the provisions of said chapter, then this obligation shall be void; otherwise, it shall remain in full force and effect."

3205. Any person who engages in the drilling, redrilling, or deepening of five or more wells at any time, may file with the supervisor one bond for twenty-five thousand dollars to cover all his operations in drilling, redrilling, or deepening of any of his wells in this State in lieu of a five-thousand-dollar bond for each well being drilled, redrilled, or deepened by him. The bond shall be executed by such person, as principal, and by an authorized surety company, as surety, and shall be in substantially the same language and upon the same conditions as provided in section 3204, except as to the difference in the amount.

3206. Any five-thousand-dollar bond issued in compliance with this chapter may, with the consent of the supervisor, be terminated and canceled and the surety be relieved of all obligations thereunder. The supervisor shall not consent to the termination and cancellation of any bond until the well or wells for which it has been issued have been properly completed or abandoned.

3207. Any twenty-five-thousand-dollar bond issued in compliance with this chapter may, with the consent of the supervisor, be terminated and canceled and the surety be relieved of all obligations thereunder when all wells covered by such bond have been properly completed or abandoned. Should the person who has filed a twenty-five-thousand-dollar bond properly complete or abandon a portion of his wells covered by the bond, the bond may, with the consent of the supervisor, be terminated and canceled and the surety be relieved of all obligations thereunder upon the filing by such person of a five-thousand-dollar bond for each well which he is still engaged in drilling, redrilling, or deepening.

3208. A well is properly completed, for the purposes of sections 3206 and 3207, when it has been completed to production of oil or gas, and the person engaged in drilling, redrilling, or deepening it has shown to the satisfaction of the supervisor that both the manner of drilling, redrilling, or deepening the well and the manner of producing oil therefrom are satisfactory. A well is properly abandoned when drilling, redrilling, or deepening has ceased before completion to production of oil or gas, and the person drilling, redrilling, or deepening it has shown to the satisfaction of the supervisor that all proper steps have been taken to shut off and exclude all water from oil-bearing or gas-bearing strata encountered in the well, and to protect underground or surface water suitable for irrigation or farm or domestic purposes from the infiltration or addition of any detrimental substance.

3209. The provisions of sections 3206 and 3207 as to termination and cancellation shall also apply to all bonds which have been heretofore filed with the supervisor as then provided by law.

3210. The owner or operator of any well shall keep, or cause to be kept, a careful and accurate log, core record, and history of the drilling of the well.

3211. The log shall show the character and depth of the formation passed through or encountered in the drilling of the well, and particularly the location and depth of water-bearing strata, together with the character of water encountered from time to time, so far as ascertained, whether or not the water was shut off, and if so at what point. The log shall show completely the amounts, kinds, and size of casing used, the depth at which oil-bearing strata are encountered, the depth and character of such strata, and whether all water overlying and underlying such oil-bearing strata was successfully and permanently shut off so as to prevent the percolation or penetration of water into such oil-bearing

strata; and whether strata bearing water that might be suitable for irrigation or domestic purposes are properly protected from the infiltration or addition of detrimental substances from the well.

3212. The core record shall show the depth, character, and fluid content of cores obtained, so far as determined.

3213. The history shall show the location and amount of sidetracked casings, tools, or other material, the depth and quantity of cement in cement plugs, the shots of dynamite or other explosives, and the results of production and other tests during drilling operations.

3214. The log shall be kept in the local office of the owner or operator and, together with the tour reports of the owner or operator, shall be subject, during business hours, to the inspection of the supervisor, the district deputy, or any of the district commissioners of the district, except in the case of a prospect well.

3215. Upon the completion of any well or upon the suspension of operations upon any well, for a period of six months, if it is a prospect well, or for a period of thirty days, if it is in proved territory, copies of the log, core record, and history, in duplicate and in such form as the supervisor may direct, shall be filed with the district deputy within ten days after such completion, or after the expiration of said thirty-day period. Like copies shall be filed upon the completion of any additional work in the deepening of any well.

3216. The owner or operator of any well, or his local agent, shall file with the supervisor a copy of the log, history, and core record, or any portion thereof, at any time after the commencement of the work of drilling any well, except a prospect well, upon written request of the supervisor or the district deputy. The request shall be signed by the supervisor or the district deputy, and served either personally or by mailing a copy of the request, by registered mail, to the last known post-office address of the owner or operator or his agent.

3217. A well is completed, for the purposes of this chapter, thirty days after it has commenced to produce oil, water, or gas, unless drilling operations are resumed before the end of the thirty-day period.

3218. The supervisor shall determine and designate what wells are prospect wells, and reports shall not be required from such prospect wells until six months after their completion.

3219. Any person engaged in operating any oil or gas well wherein high-pressure gas is known to exist, and any person drilling for oil or gas in any district where the pressure of oil or gas is unknown, shall equip the well with casings of sufficient strength, and with such other safety devices as may be necessary, in accordance with methods approved by the supervisor, and shall use every effort and endeavor effectually to prevent blowouts, explosions, and fires.

3220. The owner or operator of any well on lands producing or reasonably presumed to contain oil or gas shall properly case it with water-tight and adequate metal casing, in accordance with methods approved by the supervisor or the district deputy, and shall, under his direction, shut off all water overlying and underlying oil-bearing or gas-bearing strata and prevent any water from penetrating such strata. The owner or operator shall also use every effort and endeavor to shut out detrimental substances from strata containing water suitable for irrigation or domestic purposes and from surface water suitable for such purposes, and to prevent the infiltration of detrimental substances into such strata and into such surface water.

3221. Whenever it appears to the supervisor that water from any well is penetrating oil-bearing or gas-bearing strata or that detrimental substances are infiltrating into underground or surface water suitable for irrigation or domestic purposes, he may order a shut-off test and designate a day upon which the test shall be held. The order shall be in writing and served upon the owner or operator of the well at least ten days prior to the day designated for the test. Upon receipt of the order the owner or operator shall hold the test in the manner and at the time prescribed.

3222. The owner or operator of any well shall test the shut-off of water by any casing which has been cemented or landed in a stratum overlying an oil- or gas-bearing stratum, with not more than five feet of hole open below the bottom of the casing. The owner or operator shall notify the district deputy of the time at which he will test the shut-off of water in the well. The notice shall be given at least five days before the test.

3223. The district deputy or an inspector designated by the supervisor shall be present at the test, and shall make a report in writing of the result to the supervisor. A duplicate of the report shall be delivered to the owner.

If any test is unsatisfactory to the supervisor, he shall so notify the owner or operator and shall within five days after the completion of the test order additional tests of such work as he deems necessary properly to shut off the water in the well. In the order the supervisor shall designate a day upon which the owner or operator shall again test the shut-off of water, which day may, upon the application of the owner or operator, be changed from time to time in the discretion of the district deputy.

3224. The supervisor shall order such tests or remedial work as in his judgment are necessary to protect oil and gas deposits from damage by underground water, or to prevent the escape of water into underground formations, or to prevent the infiltration of detrimental substances into underground or surface water suitable for irrigation or domestic purposes, to the best interests of the neighboring property owners and the public. The order shall be in writing, signed by the supervisor. It shall be served upon the owner of the well, or his local agent, either personally or by mailing a copy of the order to the post-office address given at the time the local agent is designated. If no local agent has been designated, the order shall be served by mailing a copy to the last known post-office address of the owner, or if the owner is unknown, by posting a copy in a conspicuous place upon the property, and publishing it once a week for two successive weeks in some newspaper of general circulation throughout the county in which the well is located. The order shall specify the conditions sought to be remedied and the work necessary to protect such deposits from damage from underground water.

3225. Whenever the supervisor or a district deputy makes or gives any written direction concerning the drilling, testing, or other operations in any well drilled, in process of drilling, or being abandoned, and the operator, owner, or representative of either, serves written notice, either personally or by mail, addressed to the supervisor, or to the district deputy at his office in the district, requesting that a definite order be made upon such subject, the supervisor or the district deputy shall, within five days after receipt of the notice, deliver a final written order on the subject matter in such manner and form that an appeal therefrom may be taken at once to the board of oil and gas commissioners of the district.

3226. Within thirty days after service of an order, pursuant to sections 3224 and 3225, or if there has been an appeal from the order to the board of district commissioners, within thirty days after service of the decision of the board, or if a review has been taken of the order of the board of district commissioners, within ten days after affirmance of the order, the owner shall commence in good faith the work ordered and continue it until completion. If the work has not been commenced and continued to completion, the supervisor shall appoint necessary agents who shall enter the premises and perform the work. An accurate account of the expenditures shall be kept, and the amounts shall be paid from the petroleum and gas fund upon the warrant of the State Controller. Any amount so expended shall constitute a lien against the property upon which the work is done.

3227. Every person producing oil or gas in the state shall file with the supervisor, on or before the tenth day of each month, for the last preceding calendar month, a statement, in such form as the supervisor may designate, showing:

(a) The amount of oil and gas produced from each well during the period indicated, together with the gravity of the oil, the amount of water produced from each well, estimated in accordance with methods approved by the supervisor, and the number of days during which fluid was produced from each well.

(b) The number of wells drilling, producing, or idle, owned or operated by such person.

(c) What disposition was made of the gas produced from each well, including the names of persons, if any, to whom the gas was delivered, and such other information regarding the gas and the disposition thereof as the supervisor may require.

Upon request and satisfactory showing, a longer interval may be fixed by the supervisor for such reports in the case of any specific owner or operator.

3228. Before abandoning any well in accordance with methods approved by the supervisor or the district deputy, and under his direction, the owner or operator shall shut off and exclude all water from entering oil-bearing or gas-bearing strata encountered in the well, and shall use every effort and endeavor to protect any underground or surface water suitable for irrigation or domestic purposes from the infiltration or addition of any detrimental substances.

3229. Before any work is commenced to abandon any well, the owner or operator shall give written notice to the supervisor or the district deputy of his intention to abandon the well and the date upon which the work of abandonment will begin.

The notice shall be given at least five days before the proposed abandonment, and it shall show the condition of the well, and the proposed method of abandonment.

The owner or operator shall furnish the supervisor or the district deputy any additional information that he may request regarding the condition of the well and the proposed method of abandonment, at any time between the filing of the notice of intention to abandon the well and the completion of abandonment.

3230. The supervisor, or the district deputy, shall, before the proposed date of of commencing work to abandon such well, furnish to the owner or operator either:

(a) A written report of approval of the proposal.

(b) A written report stating what work or tests will be necessary before approval of abandonment will be given.

(c) A written request stating what information will be necessary for the owner or operator to furnish the supervisor or the district deputy before approval to commence work to abandon or before approval of abandonment will be given.

3231. If the supervisor or the district deputy fails to give the owner or operator a written report or request within the specified time, such failure shall be considered as an approval of the proposal to abandon the well, and the proposal shall, for the purposes and intents of this chapter, be deemed a written report of the supervisor or the district deputy.

3232. Within five days after the completion of abandonment of any well, the owner or operator of the well shall make, in such form as the supervisor or the district deputy may direct, a written report, in duplicate, of all work done in connection with the abandonment. The supervisor or the district deputy shall, within ten days after the receipt of a written report of completion, furnish the owner or operator with a written final approval of abandonment, or a written disapproval of abandonment, setting forth the conditions upon which the disapproval is based.

Failure to abandon in accordance with the approved method of abandonment, or failure to notify the supervisor or the district deputy to witness any test provided to be witnessed by the supervisor, the district deputy or his inspector, in the approved proposal, or failure to furnish the supervisor or the district deputy, at his request, with any information regarding the condition of the well, shall constitute sufficient grounds for disapproval of the abandonment.

3233. No person, whether as principal, agent, servant, employee, or otherwise, shall remove any rig, derrick, or other operating structure, or the casing or any portion thereof, from any well without first giving written notice to the supervisor or the district deputy of his intention to remove such rig, derrick, structure, or casing from such well. The notice shall be given at least five days before the proposed removal.

The supervisor or the district deputy shall, before the proposed date of removal, furnish the person with a written report of approval of his proposal, or a written report stating what work shall be done before such approval will be given.

If the supervisor or the district deputy fails to give the person a written report within the specified time, such failure shall be considered an approval of the proposal to remove the rig, derrick, structure, or casing, and such proposal shall, for the purposes and intents of this chapter, be deemed a written report of the supervisor or the district deputy.

Within five days after the completion of the removal, the person shall make, in such form as the supervisor or district deputy may direct, a written report, in duplicate, of all work done in connection with such removal.

3234. The records of any operator, when filed with the district deputy, as provided in this chapter, shall be open to inspection to those authorized in writing by such operators, to the State officers, and to the district board of oil and gas commissioners.

Such records shall in no case other than those expressly provided in this chapter, be available as evidence in court proceedings. No officer or employee or member of any district board of commissioners shall be allowed to give testimony as to the contents of such records, except at such court proceedings as are provided in this chapter for the review of a decision of the supervisor

or a district board of commissioners, or in any proceeding initiated for the enforcement of an order of the supervisor, or for the enforcement of a lien created by this chapter, or for the collection of an assessment levied pursuant to this chapter, or in criminal proceedings arising out of such records or the statements upon which they are based.

A copy of any document, order, requisition, or decision made, executed, or issued by the supervisor or the district deputy, when certified by the supervisor or the district deputy to be a true copy of the original, shall be received in evidence in any proceeding herein provided, in like manner and with the same effect as the original.

3235. Upon receipt by the supervisor or by a district deputy of a written complaint, specifically setting forth the condition complained against, signed by a person owning land or operating wells within a radius of one mile of any well or group of wells complained against; or upon a written complaint specifically setting forth the condition complained against, signed by any one of the board of commissioners for the district in which the well or group of wells complained against is situated, the supervisor shall make an investigation of the well or wells and make a written report and order, stating the work required to repair the damage complained of, or stating that no work is required.

A copy of the order shall be delivered to the complainant, or if more than one, to each complainant, and, if the supervisor orders the damage repaired, a copy of the order shall be delivered to each of the owners, operators, or agents having in charge the well or wells upon which the work is to be done.

The order shall contain a statement of the conditions sought to be remedied or repaired and a statement of the work required by the supervisor to repair the condition. Service shall be made by mailing copies to such persons at the post-office address given.

3236. Any owner or operator, or employee thereof, who refuses to permit the supervisor or the district deputy, or his inspector, to inspect a well, or who wilfully hinders or delays the enforcement of the provisions of this chapter, and every person, whether as principal, agent, servant, employee, or otherwise, who violates, fails, neglects, or refuses to comply with any of the provisions of this chapter, or who fails or neglects or refuses to furnish any report or record which may be required pursuant to the provisions of this chapter, or who wilfully renders a false or fraudulent report, is guilty of a misdemeanor, punishable by a fine of not less than one hundred dollars, nor more than five hundred dollars, or by imprisonment for not exceeding six months, or by both such fine and imprisonment, for each such offense.

Article 5. Unreasonable Waste of Gas

3300. The unreasonable waste of natural gas by the act, omission, suffrage, or insistence of the lessor, lessee or operator of any land containing oil or gas, or both, whether before or after the removal of gasoline from the gas, is opposed to the public interest and is unlawful. The blowing, release, or escape of gas into the air shall be prima facie evidence of unreasonable waste.

3301. Whenever the supervisor finds that it is in the interest of the protection of oil or gas from unreasonable waste, the lessors, lessees, operators or other persons owning or controlling royalty or other interests in the separate properties of the same producing or prospective oil or gas field, may, with the approval of the supervisor, enter into agreements for the purpose of bringing about the cooperative development and operation of all or a part or parts of the field, or for the purpose of bringing about the development or operation of all or a part or parts of such field as a unit, or for the purpose of fixing the time, location, and manner of drilling and operating of wells for the production of oil or gas, or providing for the return of gas into the sub-surface of the earth for the purpose of storage or the repressuring of an oil or gas field. Any such agreement shall bind the successors and assigns of the parties thereto in the land affected thereby and shall be enforceable in an action for specific performance.

3302. Upon complaint being made to the director by any person operating in any oil field that there is occurring or threatened an unreasonable waste of gas in any field or fields, and when a petition is filed with the director requesting that a hearing be held to consider whether such waste is occurring or threatened, if it appears to the director that there is probable cause for such complaint, he shall order the supervisor to hold such a hearing and to

fix a time and place therefor. A hearing may also be ordered by the director on the application of the supervisor.

3303. Notice of the time and place of the hearing shall be given by publication in a newspaper printed and published in the county in which the unreasonable waste of gas is alleged to be taking place or to be threatened. The notice shall specify the commonly accepted name or a general description of the field or locality. Publication shall be daily for five days prior to the time of the hearing. The supervisor shall also send notice by mail to each lessor, lessee, or operator known to him of any well in the field. Failure to send such written notice shall not affect the validity of the proceeding.

3304. The place of hearing shall be in the county or in any of the counties in which the unreasonable waste of gas is alleged to be taking place or to be threatened.

3305. At the hearing all persons interested are entitled to be heard and may present testimony either oral or written. All witnesses shall be sworn, and a transcript of the proceedings shall be kept by a stenographic reporter. All the provisions of this chapter in reference to the subpoenaing of witnesses and the taking of depositions are applicable to the hearing before the supervisor.

3306. Upon the conclusion of the hearing, the supervisor shall determine whether or not there is an unreasonable waste of gas in the field, in existence or threatened, and shall also determine the extent to which the waste of gas, occurring or threatened, is unreasonable.

3307. If it appears that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power, or any other industrial purpose, and if it appears that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells, and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas, the supervisor shall hold that such excess production of gas is unreasonable waste, if such a holding will not cause an unreasonable waste of gas in any other field.

3308. If the waste of gas is found to be unreasonable, an order shall be made by the supervisor directing that the unreasonable waste of gas be discontinued or refrained from to the extent stated in the order. The sale or delivery of gas to another by a lessor, lessee, or operator shall be no defense, excuse, or reason for any lessor, lessee, or operator disobeying an order of the supervisor directing the discontinuance or curtailment of the production of the well or wells from which gas is being produced if the gas is being unreasonably wasted by the buyer or by the person to whom deliveries are being made.

3309. A copy of the supervisor's order shall be posted in a conspicuous place upon the property affected, and the order shall become final five days after posting, unless it is appealed from as provided in section 3350.

3310. When the decision of the supervisor that there is an unreasonable waste of gas occurring or threatened has become final, a certified copy thereof, or, if modified by the order of the board of district commissioners, then a certified copy of the order as modified, shall be filed with the director. The director, unless the order is complied with voluntarily shall have proceedings instituted in the name of the people of the State of California to enjoin the unreasonable waste of gas.

Such proceeding shall be instituted in the superior court of the county in which is situated the property, or any part thereof, where the wastage is occurring or is threatened. Any number of defendants may be joined in the same proceeding, although their properties and interests may be severally owned and their actual or threatened unreasonable wastage of gas may be separated and distinct, if the actual or threatened unreasonable waste by all of the defendants is in or with reference to the same producing or prospective oil or gas field.

3311. In such suits a restraining order shall not be issued ex parte, and a temporary or permanent injunction issued in such proceedings shall not be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking or otherwise, but otherwise the procedure, including the procedure on appeal, shall be conformable with the provisions of Chapter III of Title VII of Part 2 of the Code of Civil Procedure.

In such proceedings the findings of the supervisor, unless set aside or modified by the board of district commissioners, or if so modified then except to the extent so modified, shall constitute prima facie evidence of the unreasonable wastage of gas therein found to be occurring or threatened.

3312. Whenever it appears to the director that the owners, lessors, lessees, or operators of any well or wells producing oil and gas or oil or gas are causing or permitting an unreasonable waste of gas, he may institute, or have proceedings instituted, in the name of the people of the State of California, to enjoin the unreasonable waste of gas regardless of whether proceedings have or have not been instituted under sections 3302 or 3305, and regardless of whether an order has or has not been made therein.

Such proceedings shall be instituted in the superior court of the county in which is situated the well or wells, or any thereof, from which the unreasonable waste of gas is occurring. The owners, lessors, lessees, or operators causing or permitting an unreasonable waste of gas in the same oil or gas field may be made parties to the action, although their properties and interests may be separately owned and their unreasonable waste separate and distinct.

3313. In such suits a restraining order shall not be issued ex parte, and a temporary or permanent injunction issued in such proceedings shall not be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking or otherwise, but otherwise the procedure shall be governed by the provisions of Chapter III of Title VII of Part 2 of the Code of Civil Procedure.

Article 6. Appeals and Review

3350. The lessor, lessee, or any operator or any well owner, or the owner of any rig, derrick, or other operating structure, or his local agent, shall within five days from the date of the service of any order from the supervisor or a district deputy, other than the order contemplated by section 3308, either comply with the order or file with the supervisor or the district deputy a written statement that the order is not acceptable, and that appeal from the order is taken to the board of district commissioners of the district under the provisions of this chapter.

Any lessor, lessee, or operator affected by an order made pursuant to section 3308 may, within five days from the posting of the copy of the order, file with the supervisor a written appeal therefrom to the board of district commissioners of the district under the provisions of this chapter.

Any such appeal shall operate as a stay of any order issued under or pursuant to the provisions of this chapter.

3351. Immediately upon filing of a notice of appeal, the district deputy, as secretary of the board of district oil and gas commissioners, shall call a meeting of the district commissioners to hear and pass upon the appeal.

No district commissioner is disqualified from sitting or acting in any appeal from any order of the supervisor involving the unreasonable waste of gas by reason of the fact that he is an employee of a lessor, lessee, or operator who is interested in the oil or gas field affected by the order.

The hearing upon the appeal before the district board shall be de novo and at such place in the district as the district commissioners may designate.

3352. Within ten days from the taking of the appeal, five days' notice in writing shall be given to the appellant of the time and place of the hearing. For good cause, the district board may postpone the hearing, on the application of the appellant or the supervisor, or the district deputy, for not exceeding five days.

3353. The district board, after hearing, shall affirm, set aside, or modify the order from which the appeal is taken, as determined by a majority of the whole board.

Within ten days after hearing the evidence, the board of district commissioners shall make a written decision with respect to the order appealed from. The decision of the district board shall forthwith be filed with the supervisor and upon such filing shall be final. In case the order is affirmed or modified, the district board shall retain jurisdiction until such time as the work ordered to be done by the order is finally completed.

The written decision shall be served upon the owner or his agent and shall supersede the previous order of the supervisor. In case no written decision is made by the board of district commissioners within thirty days after the date of notice of hearing as provided in section 3352, the order of the supervisor shall be effective and subject only to review by writ of certiorari from the superior court as provided in this article.

3354. The decision of the board of district commissioners may be reviewed by writ of certiorari from the superior court of the county in which the district is situated, if taken within ten days after the service of the decision upon the owner, operator, or agent of the owner or operator, as provided in section 3353; or within ten days after decision by the board of district commissioners upon a petition by the supervisor. The writ shall be made returnable not later than ten days after its issuance, and it shall direct the board of district oil and gas commissioners to certify their record in the cause to the court. On the return day the cause shall be heard by the court unless for good cause it is continued, but no continuance shall be permitted for a longer period than thirty days.

3355. No new or additional evidence shall be introduced in the court, but the cause shall be heard upon the record of the board of district oil and gas commissioners. The review shall not be extended further than to determine whether or not:

- (a) The district board acted without or in excess of its jurisdiction.
- (b) The order, decision, or award was procured by fraud.
- (c) The order, decision, rule, or regulation is unreasonable.
- (d) The order, decision, regulation, or award is clearly unsupported by the evidence.

3356. If a review is not taken within ten days, or if taken in case the decision of the district board is affirmed, the lien upon the property shall be enforced in the same manner as are other liens on real property, and shall first be enforced against the owner of the well, against the operator, and against the personal property and fixtures used in the construction or operation thereof, and then, if there is any deficiency, against the land upon which the work is done. Upon the request of the supervisor, the State Controller shall bring an action for the enforcement of the lien in the manner provided in article seven of this chapter.

3357. In any proceeding before the board of district commissioners, and in any proceeding instituted by the supervisor for the purpose of enforcing or carrying out the provisions of this chapter, or for the purpose of holding an investigation to ascertain the condition of any well or wells complained of, or which in the opinion of the supervisor may reasonably be presumed to be improperly drilled, operated, maintained, or conducted, the supervisor and the chairman of the board of district commissioners shall have the power to administer oaths and may apply to a judge of the superior court of the county in which the proceeding or investigation is pending, for a subpoena for witnesses to attend the proceeding or investigation. Upon the application of the supervisor or the chairman of the board of district commissioners, the judge of the superior court shall issue a subpoena directing the witness to attend the proceeding or investigation; except that no person shall be required to attend upon such proceeding, either with or without books, papers, documents, or accounts, unless he resides within the same county or within thirty miles of the place of attendance. The supervisor or the chairman of the board of district commissioners may in such case cause the depositions of witnesses residing within or without the State to be taken in the manner prescribed by law for like depositions in civil actions in superior courts of this State, and may, upon application to a judge of the superior court of the county within which the proceeding or investigation is pending, obtain a subpoena compelling the attendance of witnesses and the production of books, papers, and documents at such places as the judge may designate within the limits prescribed in this section.

3358. Witnesses shall be entitled to receive the fees and mileage fixed by law in civil causes, payable from the petroleum and gas fund.

3359. In case of the failure or neglect on the part of any person to comply with any order of the supervisor or chairman of the board of district commissioners, or any subpoena, or upon the refusal of any witness to testify to any matter regarding which he may lawfully be interrogated, or upon refusal or neglect to appear and attend at any proceeding or hearing on the day specified, after having received a written notice of not less than ten days prior to such proceeding or hearing, or upon his failure, refusal, or neglect to produce books, papers, or documents as demanded in the order or subpoena upon such day, such failure, refusal, or neglect shall constitute a misdemeanor. Each day's further failure, refusal, or neglect is a separate and distinct offense.

The district attorney of the county in which the proceeding, hearing, or investigation is to be held shall prosecute any person guilty of violating this section by continuous prosecution until the person appears or attend or produces such books, papers, or documents, or complies with the subpoena or order of the supervisor or chairman of the board of district commissioners.

Article 7. Assessment and Collection of Charges

3400. The charges directed to be levied by this article are necessary in the exercise of the police power of the State and to provide a means by which to supervise and protect deposits of oil and gas within the State, in which deposits the people of the State have a primary and supreme interest.

3401. The proceeds of charges levied, assessed, and collected pursuant to this article upon the properties of every person operating or owning any interest in the production of any well shall be used exclusively for the support and maintenance of the division of the department charged with the supervision of oil and gas.

3402. There shall annually be imposed upon the person operating each oil well in this State, or owning royalty or other interests in respect to the production from such well, a charge which shall be payable to the State Treasurer and which shall be computed at a uniform rate per barrel of oil produced from such well for the preceding calendar year. The charge shall be apportioned among all of such persons in fractional amounts proportionate to their respective fractional interests in respect to the production of such well, but the whole of such charge shall be payable by the operator, who shall withhold their respective proportionate shares of such charge from the amounts otherwise payable or deliverable to such owners of royalty or other interests.

3403. There shall annually be imposed upon the person operating each gas well in this State, or owning royalty or other interests in respect to the production from such well, a charge which shall be payable to the State Treasurer based upon the amount of gas sold in the preceding calendar year, and which shall be computed at a uniform rate per thousand cubic feet. The charge shall be apportioned among all of such persons in fractional amounts proportionate to their respective fractional interests in respect to the production of such well, but the whole of such charge shall be payable by the operator, who shall withhold their respective proportionate shares of such charge from the amounts otherwise payable or deliverable to such owners of royalty or other interests.

3404. The charges authorized by this article are in addition to any and all charges, taxes, assessments, or licenses of any kind or nature paid by or upon the properties assessed hereunder.

3405. The department shall prescribe the form and contents of all reports for making the charge or for other purposes to carry out the intent and provisions of this article, which form shall be mailed in duplicate to the person assessed under this article.

3406. Every person chargeable under this article shall, within ten days after the first Monday in March of each year, file a report with the department. The report shall show all items of information demanded by the report which are necessary to carry out this article. The report shall be verified by such person or officer as the department may designate.

3407. The department may, for good cause shown, by order entered upon its records, extend for not exceeding thirty days, the time for filing any report required by this article.

3408. If any person chargeable under this article fails or refuses to file with the department, within the time prescribed in this article, the verified report provided for in section 3406, the department shall note his failure or refusal in the record of assessments provided for in section 3418.

The department shall make an estimate of the oil or gas production to be assessed to any such person and shall assess him upon the amount thus estimated and compute the charge thereon. This assessment and charge shall be the assessment and charge for that year.

3409. If in the succeeding year any such person again fails or refuses to furnish the verified report required by this article, the department shall make an estimate as provided in section 3408, which estimate shall not be less than twice the amount of the estimate made by it for the previous year, and shall note his failure or refusal as provided in section 3408. The estimate so made shall be the assessment and charge for that year.

In case of each succeeding consecutive failure or refusal the department shall follow the same procedure until a true statement or report is furnished.

3410. The department shall, on or before the first Monday in March in each year, acting in conjunction with the Department of Finance, make an estimate of the amount of money which will be required to carry out the provisions of this chapter.

3411. At the time of making the estimate the department shall report to the Department of Finance the amount of money in the petroleum and gas fund on

the day the estimate is made, less the amount of money necessary for the support of the Division of Oil and Gas for the remainder of the fiscal year. The amount of the estimate shall not exceed the difference between the amount estimated to remain in the petroleum and gas fund at the end of the fiscal year and the sum of two hundred seventy-five thousand dollars.

3412. On or before the third Monday before the first Monday in July of each year the department shall determine the rate or rates which will produce the sums necessary to be raised as provided in sections 3410 and 3411. Within the same time the department shall extend into the proper column of the record of assessments the amount of charges due from each person.

3413. Between the first Monday in March and the third Monday before the first Monday in July in each year the department shall assess and levy the charges as provided in this article. The assessment shall be made against the person operating the property subject to assessment on the first Monday in March, except that where the actual operation of any well has changed hands during the period for which the charge is imposed, the charge shall be apportioned to each operator upon the basis of the oil or gas produced during the period, and the lien provided for in section 3423 shall be a lien against the property of each operator. If the name of the owner is unknown to the department, the assessment shall be made against unknown owners.

Clerical errors occurring or appearing in the name of any person whose property is properly assessed and charged, or in the making or extension of any assessment or charge upon the records, which do not affect the substantial rights of the payer, shall not invalidate the assessment or charge.

3414. The Director of Natural Resources, the Director of Finance, and the chairman of the State Board of Equalization shall constitute a board of review, correction, and equalization, and shall have all the powers and perform such duties as usually devolve upon a county board of equalization under the provisions of section 3672 of the Political Code.

The Director of Natural Resources shall act as secretary of the board, and keep accurate minutes of its proceedings.

The board of review, correction, and equalization shall meet at the State Capitol on the third Monday before the first Monday in July of each year, and remain in session from day to day until the first Monday in July for the purpose of carrying out the provisions of this article.

3415. The board may, at any time before the first Monday in July, correct the record of assessments and may increase or decrease any assessment or charge, if in its judgment the evidence warrants such action.

3416. On the third Monday before the first Monday in July of each year the department shall cause a notice to be published one or more times in a daily or weekly or semiweekly newspaper of general circulation published in the counties of Fresno, Kern, Los Angeles, Orange, Ventura, and Santa Barbara, and in any other counties which produce oil or gas charged pursuant to this article, if one is published therein, otherwise in a newspaper of general circulation published in an adjoining county.

3417. The notice shall state:

(a) That the assessment of property and levy of charges under this article has been completed.

(b) That the records of assessments containing the charges due will be delivered to the State Controller on the first Monday in July.

(c) That if any person is dissatisfied with the assessment made or charge fixed by the department he may, at any time before the first Monday in July, apply to the board of review, correction, and equalization to have the assessment or charge corrected in any particular.

Costs of publication shall be paid from the petroleum and gas fund. The omission to publish notice shall not affect the validity of any assessment levied pursuant to this article.

3418. The department shall prepare each year a record, called the "Record of assessments and charges for the petroleum and gas fund," in which shall be entered each assessment and levy or charge made by it upon the property assessed and charged under this article, describing the property assessed. The assessments may be classified and entered in such separate parts of the record as the department may prescribe.

3419. On the first Monday in July the department shall deliver to the State Controller the record of assessments and charges for the petroleum and gas fund, certified to by the director, which certificate shall be substantially as follows: "I, -----, Director of Natural Resources, do hereby certify that between the-

first Monday in March and the first Monday in July, 19—, I made diligent inquiry and examination to ascertain all property and persons, firms, corporations and associations subject to assessment for the purpose of the petroleum and gas fund as required by the provisions of Chapter 1 of Division III of the Public Resources Code, providing for the assessment and collection of charges for the petroleum and gas fund; that I have faithfully complied with all the duties imposed upon me by law; that I have not imposed any unjust or double assessment through malice or ill will or otherwise; nor allowed any person, firm, corporation, or association, or property to escape a just assessment or charge through favor or regard or otherwise." Failure to subscribe the certificate to the record of assessments and charges for the petroleum and gas fund, or any certificate, shall not affect the validity of any assessment or charge.

3420. The charges levied and assessed under this article are due and payable on the first Monday in July in each year. One-half thereof shall be delinquent at six o'clock p. m., on the sixth Monday after the first Monday in July, and, unless paid prior thereto, fifteen percent shall be added to the amount thereof. Unless paid prior to six o'clock p. m., on the first Monday in February next thereafter, an additional five percent shall be added to the amount thereof.

The remaining one-half of the charges shall be delinquent at six o'clock p. m., on the first Monday in February next succeeding the day upon which they became due and payable. If not paid prior thereto, five percent shall be added to the amount thereof.

3421. Within ten days after the receipt of the record of assessments and charges for the petroleum and gas fund, the Controller shall begin publication of a notice to appear daily for five days in one daily newspaper of general circulation published in each of the counties of Fresno, Kern, Los Angeles, Orange, Ventura, and Santa Barbara, and any other counties which produce oil or gas charged pursuant to this article, if one is published therein, otherwise for at least two times in a weekly or semiweekly paper of general circulation published therein. If there is neither a daily nor weekly nor semiweekly paper of general circulation published in any one of such counties, the publication of the notice for that county shall be made in a similar manner in a newspaper of general circulation published in an adjoining county.

3422. The Comptroller's notice shall state:

(a) That the Controller has received from the department the record of assessments and charges for the petroleum and gas fund.

(b) That the charges therein assessed and levied are due and payable on the first Monday in July.

(c) That one-half thereof will be delinquent at six o'clock p. m., on the sixth Monday after the first Monday in July, and unless paid to the State Treasurer prior thereto, fifteen percent will be added to the amount thereof, and unless paid prior to six o'clock p. m., on the first Monday in February next thereafter an additional five percent will be added to the amount thereof.

(d) That the remaining one-half of the charges will become delinquent at six o'clock p. m., on the first Monday in February next succeeding the day upon which they become due and payable, and if not paid to the State Treasurer prior thereto, five percent will be added to the amount thereof.

Costs of publication shall be paid from the petroleum and gas fund.

3423. The assessments and charges levied under this article are a lien upon all the property of every kind and nature belonging to the persons assessed. The assessments and charges levied upon oil or gas removed from any land in this State are a lien upon the land from which the oil or gas has been extracted. The lien shall attach on the first Monday in March of each year. The lien shall be enforced and the charges collected by an action by the State Controller as provided by this article.

3424. All charges assessed and levied shall be paid to the State Treasurer upon the order of the Controller. The Controller shall mark the date of payment of any charge on the record of assessments for the petroleum and gas fund and shall give a receipt for the payment.

3425. Errors appearing upon the face of any assessment on the record of assessments, or overcharges may be corrected by the Controller, with the consent of the Department of Finance, in such manner as the Controller and the Department of Finance agree upon.

3426. The Controller shall, on or before the thirtieth day of May next following the delinquency of any charge, bring an action in the name of the people of the State, in the county in which the property assessed is situated, to collect any delinquent charges or assessments, together with any penalties or costs, which

have not been paid and which are shown as delinquent upon the record of assessments and charges for the petroleum and gas fund.

3427. The Attorney General, as provided in section 3102, shall commence and prosecute any such action to final judgment.

3428. In such actions the record of assessment and charges for the petroleum and gas fund, or a copy of so much thereof as is applicable, duly certified by the Controller, showing unpaid charges against any person assessed by the department, is prima facie evidence of the assessment, the delinquency, the amount of charges, penalties, and costs due and unpaid, that the person is indebted to the people of the State of California in the amount of charges and penalties therein appearing unpaid, and that all forms of law in relation to the assessment of the charges have been complied with.

The provisions of the Code of Civil Procedure relating to service of summons, pleadings, proofs, trials, and appeals are applicable to the proceedings.

3429. Payment of the penalties and charges, or the amount of the judgment recovered in the action, shall be made to the State Treasurer.

3430. Any person claiming and protesting that the assessment made or charges assessed against him are void, in whole or in part, may bring an action against the State Treasurer for the recovery of the whole or any part of the charges, penalties, or costs paid on such assessment, upon the grounds stated in his protest. No action may be brought later than the third Monday in February next following the day upon which the charges were due, and unless the person has filed with the State Controller, at the time of payment of the charges, a written protest stating whether the whole assessment or charge is claimed to be void, or if a part only, what part, and the grounds upon which the claim is founded. When so paid under protest the payment shall not be regarded as voluntary.

3431. Whenever an action is commenced under the provisions of section 3430, a copy of the complaint and of the summons shall be served upon the treasurer, or his deputy. At the time the treasurer demurs or answers, he may demand that the action be tried in the superior court of the county of Sacramento, which demand shall be granted.

3432. The Attorney General, as provided in section 3102, shall defend the action.

The provisions of the Code of Civil Procedure relating to pleadings, proofs, trials, and appeals are applicable to these proceedings.

3433. Failure to begin the action within the time specified in section 3430 is a bar to recovery of the charges. In any such action the court may render judgment for the plaintiff for any part or portion of the charge, penalties, or costs found to be void and paid by plaintiff upon the assessment.

CHAPTER 2. WASTING OF NATURAL GAS

3500. All persons, firms, corporations, and associations are prohibited from wilfully permitting natural gas wastefully to escape into the atmosphere.

3501. Any person, firm, corporation, or association who digs, drills, excavates, constructs, or owns, or controls a well from which natural gas flows shall, upon the abandonment of the well, cap or otherwise close the mouth of or entrance to the well in such a manner as to prevent the unnecessary or wasteful escape of natural gas into the atmosphere.

No person, firm, corporation, or association who owns or controls land in which such a well is situated shall wilfully permit natural gas flowing from the well wastefully or unnecessarily to escape into the atmosphere.

3502. Any person, firm, corporation, or association who wilfully violates any of the provisions of this chapter is guilty of a misdemeanor, punishable by a fine of not more than one thousand dollars or by imprisonment in the county jail for not more than one year, or by both such fine and imprisonment.

3503. Each day during which natural gas is wilfully allowed wastefully or unnecessarily to escape into the atmosphere is a separate and distinct violation of this chapter.

CHAPTER 3. SPACING OF WELLS

3600. Except as otherwise provided in this chapter, any well hereafter drilled for oil or gas, or hereafter drilled and permitted to produce oil or gas, which is located within one hundred feet of an outer boundary of the parcel of land on which the well is situated, or within one hundred feet of a public street or road or highway dedicated prior to the commencement of drilling of the well, or within one hundred and fifty feet of either a well being drilled or a well theretofore drilled which is producing oil or gas or a well which has been drilled

and is not producing but which is capable of producing oil or gas, is a public nuisance.

3601. Where several contiguous parcels of land in one or different ownerships are operated as a single oil or gas lease or operating unit, the term "outer boundary line" means the outer boundary line of the lands included in the lease or unit. In determining the contiguity of any such parcels of land, no street, road or alley lying within the lease or unit shall be deemed to interrupt such contiguity.

3602. Where a parcel of land contains one acre or more, but is less than two hundred fifty feet in width, there may be drilled on the parcel of land not more than one well to each acre of the area if the well is so placed as to be as far from the lateral boundary lines of the parcel of land as the configuration of the surface and the existing improvements thereon will permit.

3603. For the purposes of this chapter, an alley which intersects or lies within any block or other subdivision unit is not a public street or road.

3604. Each day in which the drilling of any well is carried on, or on which it is permitted to produce oil or gas in violation of this chapter is a separate nuisance.

3605. The provisions of this chapter do not apply to any field producing oil or gas on August 14, 1931.

VI. CONCLUSIONS AND SUMMARY

1. Unutilized or blown gas for total California has been reduced from 39.5 percent in 1930 to about 7.3 percent average for the years 1935 to 1939, inclusive. This is a marked accomplishment.

2. The very important fields of Kettleman North Dome, North Belridge, and Ventura Avenue produce approximately 50 percent of the State's gas.

Kettleman has reduced its unutilized gas from 39.34 percent in 1930 to 1.41 percent in 1939.

North Belridge reduced its unutilized gas from 78.5 percent in 1930 to 3.7 percent in 1939.

Ventura Avenue reduced its unutilized gas from 20.4 percent in 1930 to 2.3 percent in 1939.

From 1930 to 1939, inclusive, about 80,000,000 M cubic feet were stored or injected into oil horizons. This amount is equal to approximately three times the amount of gas blown during 1939. These great reductions in volume of unutilized gas were accomplished through the cooperative efforts of a majority of the operators, together with the operation of the California State conservation act.

3. Surface waste of oil at the present time is practically negligible. Underground waste of oil and gas is questionable of determination, but abundant study is being conducted in efforts to determine and eliminate such losses. Our operating practices are improving rapidly and our losses should therefore decrease steadily.

4. The present practice is toward wider spacing of wells, and is conducive to conservation.

5. California has an effective conservation law which prohibits gas waste, provides for control of gas-oil ratios, prohibits improper drilling or abandonment of wells, provides for proper keeping of records of drilling and production, and which permits operators to enter into unit and cooperative agreements.

6. I do not believe that H. R. 7372 would benefit California or, for that matter, any of the other oil-producing States or the public. We are improving our practices and our efficiency of operation constantly, and we do not need H. R. 7372 to enforce the adoption of these improvements.

The act as written is very arbitrary, does not permit recourse to the courts of law, places unrestricted power in the hands of the commissioner, would inflict a great burden upon the public and the industry in the form of administrative costs, and probably could not be properly administered from a practical operating standpoint.

Respectfully submitted.

L. A. CRANSON.

Mr. COLE. Thank you, Mr. Cranson.

Mr. PEARSON. May I ask a question?

Mr. COLE. Yes; surely.

Mr. PEARSON. Mr. Cranston, in the closing summary of your statement I notice you pointed out the reduction of unutilized gas in the Kettleman field and the Ventura field.

Mr. CRANSTON. Yes.

Mr. PEARSON. Those were both brought about by court action in 1915, were they not?

Mr. CRANSTON. Together with the cooperation of the operators; yes.

Mr. PEARSON. Well, there was a very decided waste of gas there until action was taken under the law which you have cited, to compel the utilization of this gas?

Mr. CRANSTON. Yes.

Mr. PEARSON. I also notice that you did not point out just what has happened in the Montebello field.

Mr. CRANSTON. I haven't done that, Mr. Pearson, for this reason: That field is to be covered by Mr. Garrison, who is entirely familiar with the subject, and who has served on the committee there, and he has gone into that matter very carefully with respect to the conditions there.

Mr. PEARSON. Very well. Just one question, Mr. Cranston, about the act of 1915. As I recall it, some previous witness stated that the failure to curb the waste of energy in the oil industry has been brought about, to a large extent, by virtue of the fact that the enforcement of the statute has been very cumbersome and difficult. Do you believe in that criticism of the law which you now have on your statute books?

Mr. CRANSTON. Well, I think in some cases probably that has been true. But if we take the picture as a whole as shown by these curves which I have presented, we will find that we have reduced gas waste from hundreds of billions of feet down to practically nothing—I think to a figure of 2.37 percent of production as an average for the last few years.

Mr. PEARSON. Do you think that the act of 1915 as now written and amended is sufficient for its purpose?

Mr. CRANSTON. Yes; I do.

Mr. PEARSON. And in the enforcement it is satisfactory under existing provisions?

Mr. CRANSTON. I think so; yes.

Mr. PEARSON. And you do not agree it is cumbersome and difficult to enforce?

Mr. CRANSTON. I don't see why it should be.

Mr. PEARSON. I don't recall who made that statement, whether Mr. Morton or some witness subsequent to him, but I did understand the industry criticized the failure of this law to accomplish its purpose because of the manner in which it was drawn and the difficulty in enforcing it.

Mr. CRANSTON. I think the operation of the law has been very successful. That is my own opinion.

Mr. PEARSON. All right.

Mr. COLE. Thank you, Mr. Cranston. Mr. Garrison, we will hear you.

STATEMENT OF ROBERT H. GARRISON

Mr. GARRISON. I am a graduate of Harvard College. I have had 18 years' experience as a petroleum engineer in southern California, the

first 9 years as an oil company employee and the last 9 years in consulting work. My clients consist chiefly of oil companies and individuals whose operations are too small to support a petroleum engineering department and who come to me for petroleum engineering services. I have acted for 7 operators with a total of 26 wells in the West Montebello field. For the past seven months I have been a member of an engineering committee of 5 appointed by the Superior Court to advise it in the current injunction proceedings.

As West Montebello is the only field in California, in which serious quantities of dry gas are currently blown to the air, it seems advisable to report conditions in some detail. The West Montebello field is a producing unit of minor importance, its productive area being less than one square mile compared with the Kettleman Hills area of 26 square miles. The total ultimate production from all known zones in the West Montebello field is variously estimated at between 20,000,000 and 30,000,000 barrels of oil, while a similar figure for Kettleman Hills would be 600,000,000 barrels, and for Wilmington 400,000,000 barrels. West Montebello is to a great extent a town-lot field with diverse land ownership and consequent irregular well spacing. The 161 producing wells are owned by 50 different oil companies, many of them small and many whose sole holdings are in the West Montebello field. Not only did the diverse ownership affect the spacing of the wells, but the peculiar physical conditions in the field would not permit the adoption of a satisfactory uniform well spacing program.

The first well from the 8th zone, which is the only horizon contributing seriously to the blow of gas, was completed April 17, 1939. By June a considerable blow of gas to the air was threatened and the State of California obtained a temporary order in the Superior Court restraining the oil production and thereby the gas production of the wells. In July an order was issued directly curtailing the flow of gas by allocating a gas allotment to each well, such allotment being based upon the demonstrated potential of each well. This order with certain modifications is still in effect.

When the gas allocation schedule became effective in July there were 56 wells with a total demonstrated potential of 160,604 M cubic feet per day. The schedule permitted a production of 26,172 M cubic feet per day. As of January 1, 1940, the number of wells had increased to 161 with a total cumulative tested potential of 517,573 M cubic feet and an allotment of 95,904 M cubic feet. In terms of oil curtailment West Montebello is currently 15.4 percent below the allotment set by the oil empire in accordance with the uniform proration formula which is applied to all other fields in the State. While the blow of gas has not actually been eliminated, a comparison of present allotment with the productive capacity of the wells indicates the effectiveness of the current gas curtailment program in preventing the development of a really critical condition.

At the beginning of the court proceedings a few operators questioned the power of the court and expressed doubt as to the effectiveness of the law. Contempt proceedings were instituted against those who failed to obey the order and in every case the violators were found guilty and suitable fines levied where indicated. General compliance is now the rule and there appears to be no doubt as to the enforceability of the law. If the court deemed the present gas blow "unreasonable

waste," a further curtailment would be within its power. The question then remains why the court does not deem such blow "unreasonable waste."

I cannot, of course, explain what may be in the mind of the court, but I can point out some of the considerations brought out in discussions of the committee of five engineers appointed by the court to advise it in this matter. This committee consisted of the chief deputy State oil and gas supervisor, an employee of a major oil company, an employee of the minor oil company having the largest holdings in the area and two consulting engineers. The technical staffs of other operating companies assisted the committee at various times.

Natural gas in this field serves three main uses:

1. As reservoir energy to propel the oil into the well and lift it to the surface.
2. As a source of natural gasoline.

3. As a fuel

While gas-oil ratios in this field are normally high, running at present 4.705 cubic feet per barrel of oil, recent tests on 17 selected key wells indicated that higher gas-oil ratios would be the rule if the wells were produced at a higher rate of flow, as would be the case under normal oil curtailment practice.

Operators in the field have done considerable research and have spent large sums of money in efforts to conserve reservoir energy. For example, in a large area the upper eighth zone has a much higher gas-oil ratio than the lower eighth. Many operators have segregated the two portions of the zone, and have restricted the flow of oil and gas into the tubing from the upper eighth zone in order to utilize to best advantage the energy of the upper portion of the zone for the purpose of lifting oil from the lower portion. Such a program has necessitated additional cementing operations, extra perforating expense and the use of special subsurface mechanical appliances. It may, therefore, be concluded that enforcement of the present court order, together with the cooperation of the oil companies, has resulted in a more efficient use of reservoir energy.

95.78 percent of all gas produced is processed in the gasoline plants and the natural gasoline extracted. The remaining 4.22 percent is from small wells whose pressure is insufficient to permit their gas to enter the gathering lines. This condition is, however, being remedied.

There still remains, however, a blow of gas to the air. At the present time sale of gas from the field cannot be materially increased without construction of additional pipe lines. Data is being compiled as to the feasibility of additional pipe-line construction. There is considerable doubt whether the cost of such construction could be amortized from the sale of that portion of the remaining gas reserve which would otherwise be unconserved.

Further curtailment of the wells would appear to be a greater evil than the present temporary blow of dry gas. Under the current method of operation there is a grave question as to whether oil may not be migrating from the higher gas-oil ratio wells in the better structural locations toward the lower gas-oil ratio wells on the flanks. It is my opinion—and that of many other engineers—that further curtailment would definitely result in a decreased ultimate produc-

tion for certain classes of wells and that such a program in a field of diverse ownership would result in the destruction of equities.

In summation, it appears that the State of California is doing a good job in a difficult situation. The State has adequate power to control waste of gas and is using that power in a just and reasonable manner, with definite consciousness of equities existing between the various operators and landowners in the area. I fail to see how any other agency would be likely to do better.

Mr. COLE. May I ask you on page 4, at the bottom of the page, you stated that further curtailment would definitely result in a decreased ultimate production. You mean by that, I assume, that all of the known reserve in the field will never be recovered.

Mr. GARRISON. No; I say "for certain classes of wells." The difficulty is that further curtailment would drive oil from the higher structural locations down to the lower structural locations. I do not think it would leave any oil underground but it would drive oil from John Smith's well into John Jones' well. That is the difficulty that has confronted us.

Mr. COLE. Then it would be produced?

Mr. GARRISON. Yes; from certain other classes of wells.

Mr. COLE. You are not contradicting that statement now, are you?

Mr. GARRISON. No. In other words, for the high gas-oil ratio wells they would be discriminated against.

Mr. COLE. Any questions?

Mr. KELLY. Yes.

Mr. COLE. Mr. Kelly?

Mr. KELLY. In Mr. Cranson's statement he mentioned about the proper spacing, 1 to 20 and 1 to 10 acres, that is now being practiced in a number of these oil fields, the new ones. You mentioned here on page 1 where there is irregular well spacing in the Montebello field. Is that on account of it being a town-lot field?

Mr. GARRISON. Yes. That is wholly due to the land ownership. It is a different situation. We cannot as a rule follow one practice, because many times one man puts down his well and then his next-door neighbor puts down a well to protect himself from drainage.

Mr. KELLY. The proper spacing is entirely up to the central committee, and they are the ones who direct how the wells shall be spaced?

Mr. GARRISON. No; the committee has nothing to do with well spacing. Now, in this case there is a very complex situation, because we have eight zones in Montebello, and those zones have different areal extents. In some cases they are not even next to one another, one zone may be in one place and another zone may shift to a different location, and it would be impossible before the field was drilled up, even if you had one ownership, to say what would be the proper well spacing.

Mr. HOLMES. Are you a native of California?

Mr. GARRISON. No; I am a native of Massachusetts.

Mr. HOLMES. Then it is no wonder that you maintain your Harvard accent. You are a lawyer?

Mr. GARRISON. No, sir; I am just an engineer.

Mr. HOLMES. Just an engineer?

Mr. GARRISON. Yes.

Mr. HOLMES. Were you here during the N. R. A.?

Mr. GARRISON. Yes, sir.

Mr. HOLMES. And prior to that act—you were in California?

Mr. GARRISON. Yes, sir.

Mr. HOLMES. Did at any time any Federal commission set up by Congress to protect the interests of the consumer, ever attempt to help the oil industry of California in solving their problems insofar as production, sale, refining, or consumption were concerned?

Mr. GARRISON. I never heard of it.

Mr. HOLMES. Did it ever take any action against the organization in California?

Mr. GARRISON. Not to my knowledge. Being a field engineer there may be many things about which I would not have information or of which I would not be cognizant.

Mr. HOLMES. Has the Department of Justice taken any action at all against the oil producers of California?

Mr. GARRISON. Well, I have read in the paper that the Department of Justice has taken some action.

Mr. HOLMES. On complaint?

Mr. GARRISON. But not against producers.

Mr. HOLMES. In other words, as far as your organization is concerned, you have not been interfered with whatsoever?

Mr. GARRISON. No; not so far as our curtailment program is concerned has there been any interference to my knowledge.

Mr. HOLMES. Has there been any attempt to break up your organization?

Mr. GARRISON. I know of no such attempt.

Mr. HOLMES. As a matter of fact, the N. R. A. Act was declared unconstitutional. What progress have you made since that time?

Mr. GARRISON. I think we have made great progress, and particularly in the last 8 months. In June of 1939 a schedule was adopted which has caused less complaint than any schedule either under the N. R. A. or otherwise. I think we have finally hit on something that seems to be satisfactory to the vast majority of operators.

Mr. HOLMES. Some observation was made here a while ago, relative to your exporting of oil. How could you stop shipment of oil to any country and still be neutral?

Mr. GARRISON. That I don't know.

Mr. HOLMES. Well, that is what I am trying to find out.

We may be called upon to take action on that question later. You have exported this oil for years and years to these various countries, have you not?

Mr. GARRISON. I presume so.

Mr. HOLMES. And there has been no complaint at all up to the present time, at least about the exporting of oil?

Mr. GARRISON. No.

Mr. WOLVERTON. Do you mean to the Japanese?

Mr. HOLMES. I mean to any country. Now, as I understand, the Neutrality Act of 1935 placed in the hands of the President the right to declare the aggressor nation, and until such time as he declared an aggressor nation we would continue to be neutral. During the last 3 years, with this war raging between China and Japan, the President has not seen fit to declare that Japan was the aggressor

nation, consequently the State of California could not go ahead and place any embargo on any products because that would be an unneutral act. And the same is true with Russia. We did, however, invoke the Neutrality Act against Spain and Italy. That was a definite step taken by the President of the United States, that placed the embargo on the shipments of oil or munitions of war, to those countries.

Now, in viewing this world war today, all neutral countries in Europe that are right next door to the battlefields of Russia and Germany, I think they are taking exactly the same position as we are now. If they are going to be neutral they are going to treat the nations of the world just the same as they treated them before any war was declared, and I would like to know what other action we can take to be neutral than to continue to do business with these countries as we have always done until some definite time when steps are taken to apply an embargo.

Mr. GARRISON. I am afraid, being a field engineer rather than a statesman, I cannot very well qualify. [Applause.]

Mr. COLE. But you would vote for Massachusetts?

Mr. GARRISON. Of course, that is a big help.

Mr. HOLMES. I assure you I was not trying to trap you. As a matter of fact, I am just a new member of this oil committee, and I was trying to get some information.

Mr. GARRISON. My client, you see, sells oil at the well to either large or small refiners, so that their immediate knowledge ends as the oil leaves their tanks and goes into the pipe line.

Mr. HOLMES. As I understand it, however, you people out here in California are fearful if any legislation is passed that the Government will strangle your industry. Is that because of your knowledge of the operations of the national labor relations law, the wages-and-hours law, or is it because of the attitude of the Federal Trade Commission? Is it that sort of legislation and experience in the last 9 or 10 years that makes you fearful of Federal regulation?

Mr. GARRISON. I have no doubt that would be a great influence. However, I think the chief feeling among the small people that I work for is that they are handling their business in the best way they know how. They are doing everything they can, and they don't see how any outside interference can be of any assistance.

Mr. HOLMES. Let's carry that one step further. You would not be opposed to a national law—or would you—providing you knew a national law could be enacted that would treat you fairly and squarely and give every man in the industry the right to operate his own business?

Mr. GARRISON. We feel we are doing all right as it is. The lack of necessity for such a law, I believe is the feeling that we have.

Mr. HOLMES. Well, I can appreciate during the last 7 or 8 months of the last year that you have done a wonderful job. The question is whether or not these interstate compacts in the future will break down and then all the States be in the position of California, leaving it to the particular industry in each State to solve its own problem. I am certainly in accord with your principle of individual initiative, individual enterprise, individual control of industry, whether it be oil or manufacturing, but if you will look at this from a national point of view for the conservation of oil, if you had the assurance some national

legislation could be enacted that would still leave to you that right of individual control, would you support a Federal act under those conditions?

Mr. GARRISON. I should say at the time we fail to do the job ourselves we should.

Mr. HOLMES. That is what I was hoping you were going to say, because I feel a good deal along that line myself. I think that is all, Mr. Chairman. [Applause.]

Mr. COLE. Any questions of Mr. Garrison?

Mr. KELLEY. He has gone.

Mr. COLE. Call Mr. Hall. Order, gentlemen; let's have a little order, please. Mr. Hall, do you have a copy of your statement, sir?

Mr. HALL. Yes.

Mr. COLE. While the statement is being distributed, some gentlemen in the room have asked to insert statements in the record and to be heard briefly. Some have asked if all the time was allocated. I wanted to hear them if it is possible to do so. I hope that they will stay in the room until this morning's session is over, and I will see what we can do about it. I will take that up later if you remain here. All right, Mr. Hall, your full name, sir?

STATEMENT OF ELWIN B. HALL

Mr. HALL. My name is Elwin B. Hall. I am president of the Hall-Baker Co., a firm established in 1923 for the purpose of performing, under contract, oil-field leasing, drilling, and production work. I commenced working in the oil fields of California as a roustabout in the year 1909. I graduated from Stanford University in 1914 in geology with an A. B. degree. I was intermittently employed in oil-field work from 1909 to 1918. From 1918 to this date I have been engaged exclusively in the oil business.

It has come to my attention that the Wilmington oil field, located in Los Angeles County, Calif., has been and is being cited as an example of bad drilling and production practices, and that it is one that should be regulated in the manner proposed in the House of Representatives bill No. 7372. Being the president of a firm which has the policy of conservation at heart, I request this committee's permission to briefly submit some factual data to refute such criticism.

Such criticism is both unjust and unfair. The wholehearted cooperation among operators in this field during the last year has resulted in reducing to an economic minimum the temporary gas blow which occurred in the field immediately following its discovery. Before attempting to answer such criticism I should like to present certain facts about the Wilmington oil field, so that you will be in a better position to judge conditions as they have existed and now exist in that field.

Mr. HALL. This field has within its productive limits approximately 3,575 acres. Approximately 1,025 acres of the 3,575 acres are located in town-lot subdivisions. There are 108 operators, many of whom have from one to five wells each. Lessors and landowners are numbered well above 2,500. This field has the largest allotment and twice the best potential of any other field in the State.

Now, I will skip over a great deal here which goes into detail.

Mr. COLE. Mr. Hall, you understand, of course, that your statement will go into the record as it is.

Mr. HALL. Yes; I understand that, Mr. Cole, and that is why, in conformity with your request to brief our statement, that I am cutting it so very short. I will give you enough copies, as many copies, indeed, as you may wish, so that you may go over it and its details more at your leisure.

Rather than attempting to state the criticism which has been levelled at the Wilmington field or to define its source, I prefer to test the Wilmington field by the proposed findings and regulations set forth in section 6, subparagraph (b) of House Resolution 7372. In this paragraph, 11 items are listed as the basis of testing factors of waste.

Under item (1) I take up spacing, location, drilling, completion, and production of wells, with reference to waste of reservoir energy.

Mr. COLE. Well, I will ask you there your conclusion as to spacing, location, drilling, completion, and so forth.

Mr. HALL. Would you like to have me read from my statement?

Mr. COLE. No; what is your conclusion as to each of those subjects?

Mr. HALL. My conclusions are as follows, beginning with the 11 items:

Mr. COLE. I do not want to disturb the continuity of the reading of your paper. Do you have that in your paper?

Mr. HALL. I go through the 11 items and I apply these rules and tests, as far as they can be applied, in the Wilmington field, and I reach these conclusions: In conclusion I wish to state that if House Resolution 7372 were now a law and were administered equitably it would not change in any way the general drilling and production practice which is being used at Wilmington today under voluntary curtailment.

Mr. COLE. May I ask you if you mean by that that the formula laid down in House Resolution 7372, from the engineering standpoint, is just about what you adopted for the Wilmington field?

Mr. HALL. That is what we are carrying out under voluntary curtailment.

Mr. COLE. So that if the Federal act were properly administered there would be no occasion to change anything that is going on in the Wilmington field?

Mr. HALL. No; there would not be any occasion to change it.

Mr. COLE. You consider that practice in the Wilmington field highly efficient.

Mr. HALL. I consider it excellent.

Mr. COLE. You consider it excellent?

Mr. HALL. Yes; there is no wastage.

Mr. COLE. Have you stated in your paper the number of wells? Take, for instance, in December 1936 until the end of 1937, the file shows 345 wells completed in this field. By the end of 1939 the number was increased to 669; is that correct?

Mr. HALL. I would say that is correct. If you will look at plate 2, you will see charted the producing wells, the percentage of curtailment, and the potential as of each month, and the production as of each month. Would you care for more copies to pass around?

Mr. COLE. Yes.

This increased rapidity with which the town-lot section of the field was drilled resulted in a rapid decline in the rate of production in the field?

Mr. HALL. I would say it has not. If you look at the potential curve there, you will see we have over twice the potential of any other field in the State.

Mr. COLE. Mr. Hall, with your statement you have charts here showing your field. I am afraid that cannot go into the record.

Mr. HALL. Cannot get into the record?

Mr. COLE. I am afraid not. I don't believe a reprint would do justice to them.

Mr. HALL. I would be glad to supply you with a larger map of the Wilmington field.

Mr. COLE. We will try to. I don't know whether there will be any difficulty about it. If there are no other questions that is all, Mr. Hall. Thank you, sir. Any questions of Mr. Hall by any members of the committee?

Mr. PEARSON. May I ask Mr. Hall one question?

Mr. COLE. Mr. Pearson.

Mr. PEARSON. Mr. Hall, the facts I have before me indicate you have made a great improvement in the reduction of wastage of gas in the Wilmington field, that is in recent months. Has that been due to any change in your practices in the field, or has it been partially due to the fact you have made some connections with gas lines?

Mr. HALL. We have made connections was gas lines. I might explain that in the Wilmington town-lot area, at the time on page 302 of your Washington hearing Mr. Miller speaks of, the Wilmington end of the field had a very low gas oil ratio and contained practically no wet gas (casing-head gasoline). This delayed pipe-line connections. Even at this time very few of those wells are connected, the gas being used for field purposes.

There was another lag in pipe-line connections when drilling started in the Long Beach Harbor area. It took some time, with the rapid drilling, before pipe line capacity was available. But at the time he (Mr. Miller) speaks of, I comment on that in my filed statement, if I can find it at the moment, since I can't locate it at the moment offhand, he said there was some 49 percent blown in 1938. During the early portion of that period there was approximately a production of 37,000 M. c. f. a day. I think there was about 18,000 M. c. f. a day blown. Gas production since then, if you will look at chart 3, you will notice, has rapid increase over 1938, yet you will see down in the percentage curve at the bottom that the gas blown has declined from 60 percent in the month of May 1938 down to 1.3 percent in September 1939, which is practically nothing.

Mr. PEARSON. That is what I had in mind. I was just wondering how you brought about that improvement.

Mr. HALL. Well, we have had remarkable cooperation. I can cite instances in the Wilmington field where high gas oil ratio wells were by cooperation among operators shut in, and the allotment these wells had were transferred to low gas oil ratio wells in such a manner as to create an equitable drainage.

Mr. PEARSON. The owners or the producers in the Wilmington field have cooperated in that program?

Mr. HALL. Yes; the Wilmington field today could produce the entire State's demand and with 108 operators and over 2,500 landowners it has been a difficult task. We worked it out and I think all of California can do the same.

Mr. PEARSON. That is all I care to ask.

STATEMENT OF JOHN BEDDOW

Mr. COLE. Mr. Beddow, have you copies of your statement?

Mr. BEDDOW. Yes, sir. Mr. Cole, members of the committee, I wish to make one correction that may appear in my paper here, and that is where I have used the word "baume" I see a typographical error has been made, and I should have said "API," referring to the gravity of oil.

Mr. COLE. Just where is that?

Mr. BEDDOW. That occurs in several different places in the paper, particularly on pages 2 and 3 of this report.

Let me identify myself. My name is John Beddow. I have been employed in the oil industry for the past 18 years. Prior to that time, I spent approximately 15 years as a foreman and superintendent in the coal-mining industry. Since 1922 I have been occupied as a cracking-plant superintendent in the oil industry. For 9 years my experience was in Texas and Ohio and the following 6 years I was with the Universal Oil Products Co. In the employ of that company it was necessary for me to work in all of the oil-producing areas in the United States, as well as some foreign countries, namely, Japan and Manchuria. In 1936 I became superintendent of refining for the Wilshire Oil Co., Inc., the position which I now hold.

We of the refining division of the petroleum industry deem it a privilege to have an opportunity to discuss the problems of conservation of our national resource to the end that the people's interest will be best served and that individual initiative be encouraged in order to continue the progress which has been obtained during the past 50 years.

It is my intention to outline some of the progress that the refining industry has made to call your attention to the elimination of waste, increased yields obtained from crude oil, and the consequent conservation of underground oil reserves which has resulted from improvements in the refining art.

Since it is your request that I make this as brief as possible, I will file this paper with the many statistical data which will bear out these statements of conservation.

Mr. COLE. You may take time, Mr. Beddow, to read any part of your paper that you think we should hear at this time. Of course, the entire paper will be incorporated into the hearing. I did not want to hurry you. I mean by that you could pass over some of the paragraphs.

Mr. BEDDOW. I will do it as I go along. I would like to get in a page or two more of these data right here.

It should be understood that if the data we present and the many references made to the work done and recorded in the report of the energy's resource committee should appear to indicate that we do not see the need of further regulatory legislation at this time, it is because we have the sincere conviction that even though there may have been some mistakes made during the growing-pain period of the petroleum

industry the interest of the Nation can best be served by letting the people compete by developing more efficient ways of production.

The Wilshire Oil Co., Inc., a California corporation, was organized in the year 1919. It was and still is known as one of the many independent companies. It has confined its business largely to production and refining of crude oil in the State of California and it may be said to be representative of many such companies in the United States of America.

During the early history of this company it confined its refining efforts largely to the topping operation—that is, distilling off the straight-run gasoline and kerosene distillate. This left many thousands of barrels of residual oil commonly called topped crude. During this topping operation the Wilshire Oil Co. stored in excess of 2,000,000 barrels which were kept in reserve until after the company's cracking plant was built. If this topped crude had been forced on the market as heavy fuel oil, many thousands of barrels of premium gasoline would have been wasted and the market for other still heavier fuel oils and coal would have been impaired to where it could not have been sold at a reasonable profit. In order to demonstrate this point, we submit the following data which can be verified by our company's records.

Our refinery records will show that in the year 1933 and 1934, before cracking was resorted to, the yield of gasoline from a 30.35 A. P. I. gravity crude was 32.5 percent of a 59-octaine rating gasoline, whereas at the present time we can produce, when charging the same quality crude, 66% of a 71 octane gasoline by resorting to cracking, reforming, and polymerization.

Mr. WOLVERTON. How many gallons per barrel would that be?

Mr. BEDDOW. Well, 66 times 42 is approximately just under—

Mr. COLE. A little louder.

Mr. BEDDOW. It is 66.5 times 42—27½ gallons per barrel.

Mr. WOLVERTON. Do you mean to say that you get 27½ gallons per barrel of crude oil?

Mr. BEDDOW. We have 27½ gallons of gasoline in our refinery from a 30 A. P. I. gravity crude—that is, by cracking.

Mr. WOLVERTON. Were you present when I read some figures yesterday from a report that I had?

Mr. BEDDOW. Yes, sir.

Mr. WOLVERTON. What is the explanation? The figures that I have relate to the ratio of crude-oil and gasoline yield covering the period from 1931 to 1938, in which it was shown California 27 gravity oil, Signal Hill—the average, I think, was 13.6 gallons per barrel—and the Texas Gulf coast of 27 degree, produce 18.2 gallons per barrel, and the East Texas field 19 gallons per barrel, and the Midcontinent at 36 degrees produced 21 gallons per barrel.

The report from which I took those figures emphasized the difference between the yield in California and that of the Texas Gulf coast; it indicated the yield from the California oil of the same gravity apparently to be much less.

Now, I am not sufficiently familiar with the technical side of it to readily understand either the difference between California 27 and Texas Gulf coast 27, in that one yields about 40 percent more than the other, or what relationship the figures you gave this morning have

to these figures that I have. Could you give us some light on that subject?

Mr. BEDDOW. I imagined that we would get to that sooner or later. But I might say at this time that the potential percentage of gasoline derived from a barrel of crude depends quite largely on the A. P. I. gravity of that crude, since hydrocarbon is a compound of carbon and hydrogen, and since carbon is 12 times heavier than hydrogen we do not have to change the carbon-hydrogen ratio except to a relatively small amount to change the gravity of the crude or an oil.

Now, if we are thinking of crude oil as just straight run gasoline contained in that crude we have a great variation of straight run gasoline crude but in the main the potential gasoline contained in that crude will depend quite largely on its gravity.

Mr. WOLVERTON. That is the reason I used the same degree of gravity oil in my comparison, 27 degree gravity California, Signal Hill oil with the 27 percent Texas Gulf coast oil.

Mr. BEDDOW. Yes, that is right.

Mr. WOLVERTON. And I thought that the explanation might be the same as you have already stated, and when you said during the early history of this company, referring to your own, it confined its refining efforts largely to the topping efforts—that is, the distilling off the straight-run gasoline and kerosene distillate; in other words, it was due to the fact that they had a higher degree of refining in Texas refineries than in California?

Mr. BEDDOW. I would like to correct that to say than we had.

Mr. WOLVERTON. When did that change take place?

Mr. BEDDOW. At the present time it is taking place very rapidly.

Mr. WOLVERTON. Pardon me, but the figures I have are on the basis of 1931 to 1938. Do you mean since 1938 this radical change has been made?

Mr. BEDDOW. I can call off in a moment many independent refineries in the immediate vicinity of Los Angeles; I can call off no less than one, two—five independent refineries that have installed cracking plants during the past 18 months whereas they are now able to produce from a barrel of crude a great deal higher percent of premium gasoline than they did in former times.

Mr. WOLVERTON. The statement that I have before me, taken from the report then is true as far as it goes up to 1938?

Mr. BEDDOW. Probably so. And I would not be able to—I do not have at my thumbs end all of that data or statistics that would show how California has compared in the past with the recovery of gasoline from a barrel of crude.

Mr. WOLVERTON. Well, the reason I asked that question, which is rather technical, is because I have understood from such reading as I have had on this subject that the amount of gasoline produced depends upon the degree of cracking that is utilized. If oil is run in great quantities so that the refineries do not take it because of the great quantity or because of a desire to handle a great quantity, they do not crack down to the lowest extent that they could, or maybe should.

Mr. BEDDOW. That is right.

Mr. WOLVERTON. Therefore it has a direct relationship to the question of conservation by limitation of production.

Mr. BEDDOW. That is right.

Mr. WOLVERTON. Therefore, it would seem to me we could properly draw the inference that with lack of limitation of production or at least sufficient limitation of production that you were just skimming the surface, so to speak, you were topping it, whereas in Texas they were utilizing all cracking facilities that were available and thereby getting a larger return of gasoline, and by getting a larger return of gasoline a cheaper price to the consumer. Now, these figures that I have show the refinery gasoline price for the period that I mentioned, 1931 to 1938, for California was 7.1 cents a gallon, whereas in the Texas-Gulf coast it was costing only 5.4 cents, due to the larger yield per barrel. So it is, I think, a vital situation to which I am calling your attention, and I felt free to do so because you are emphasizing that your company has improved the amount of its return per barrel of crude oil.

Mr. BEDDOW. Very decidedly so. And I think I am speaking for the industry as a whole when I say that they are all getting more and more to cracking, both to increase the yield and increase the quality of the gasoline; and since these things have been controlled in the past largely by economic conditions, and since the crude in general in California, we will say, is heavier than many of the crudes in the Mid-Continent field, there no doubt was a tendency in the earlier history of California to convert more of these crudes to fuel oil instead of gasoline.

But the point that I want to make in that respect is that we all feel that that day has passed. Now, if we continue to compete, we certainly have to get the last squeal out of a barrel of crude, and we feel that we are doing it.

Mr. COLE. Continue with your statement.

Mr. BEDDOW. This increase in both yield and quality has been achieved through the addition of several new refinery units. In 1936 the Wilshire Oil Co., Inc., installed a Dubbs selective cracking unit at a cost of more than \$2,500,000, which in itself increased gasoline yields from the 32-percent range to approximately 64 percent. The average octane of this increased yield of gasoline was at the same time increased to somewhat more than 65. In 1937 the company's catalytic polymerization plant was added to the refinery at a cost of \$250,000. This plant increased over-all gasoline yields somewhat more than 2 percent, but the high-octane value of polymerized gasoline increased the average octane of gasoline produced to 68. In the following year a heavy naphtha reforming unit was installed at a cost of \$536,000. The purpose of this addition was to further increase the over-all quality of gasolines produced to 71 octane.

When producing 66 percent of 71-octane gasoline from a 30.5° A. P. I. crude, we will produce about 29 percent of heavy residue, which has a superior quality as fuel, since the viscosity and pour point is much lower than the original topped crude. There is another advantage in using cracked residue of 7° A. P. I. instead of topped crude of 19° A. P. I. gravity—the gravity of the top crude, 19°, is about the gravity of the top crude when we have taken the kerosene distillate out—as it is about 26 pounds per barrel heavier, and by a calculated B. t. u. value would show approximately 528,000 more B. t. u. per barrel. On a test of 6.9° A. P. I. cracked fuel against a 14° A. P. I. straight-run fuel conducted on the steamship *San Felipe*

between San Pedro and San Francisco a saving of 2.7 percent by volume was shown.

Since the Wilshire Oil Co., Inc., does not claim to be an exception to the rule in the oil-refining industry, we will give further reference to other authorities presenting statistical data. In a paper presented before the Second Oil Petroleum Congress, June 14 to 19, 1937, Paris, France, Egloff, Nelson, and Morrell say—

The modern cracking process now in operation in many parts of the world is the greatest force in the conservation of crude oil. The cracking process in the refineries of the world conserved 1,865,000,000 barrels of crude during the year 1936. It would have required 3,607,000,000 barrels of crude, instead of the actual 1,742,000,000 barrels refined to supply the gasoline for propelling the motor vehicles of the world. During 1936 the cracking process required 786,000,000 barrels of oil which yielded 303,452,000 barrels of high antiknock gasoline. To produce this volume of gasoline, the investment cost for equipment was over \$500,000,000.

Polymer gasolines of 81 to 100 octane are being commercially produced from gases generated in cracking oil. Before the end of 1937, when all the polymer units now in various stages of design or construction are in operation, production of polymer gasoline will be at the rate of more than 10,000,000 barrels a year. This will represent conservation of more than 70,000,000 barrels of crude oil per year.

The modern cracking process produces cracked gasoline, polymer gasoline, iso-octane fuel oil, coke, gas, and other products. It is also the basis of production of new chemicals for use as antioxidants, color inhibitors, dyes, resins, rubber substitutes, ethers, glycols, alcohols, acids, aldehydes pickling agents, acetylene, and sulfuric acid. Metallurgical, ceramic, and many other industries derive much of their progress by meeting the requirements of cracking.

Furthermore, the internal economic structure of the oil industry itself is profoundly affected by the cracking process. Without cracking it would have been necessary to locate more oil fields, expand the storage, pipe lines, and refining capacity to handle 1,860,000,000 more barrels of crude than was actually consumed during 1936 for supplying the gasoline needs of the world.

Colonel Auld, president of the Institute of Petroleum Technologists, stated that "cracking is not only a method for increasing the production of motor spirit from crude oil—it is one of the most important means we have for adjusting the yields of various products of petroleum to meet the ever-changing demands of the market."

The quality of gasoline has improved through the years not alone in volatility but particularly in efficiency based on antiknock ratings which now have reached 100 octane number commercially.

The latest achievement in the use of 100 octane motor fuel was the record flight from Los Angeles to New York in 7 hours 28 minutes, at an average speed of 332 miles per hour. Great as this speed is, there can be no doubt it will be increased to over 500 miles per hour, so that oversea nations will be but hours away instead of days.

Again referring to a paper presented before the Petroleum Institute's seventeenth annual meeting in Chicago, November 11, 1936, Egloff says:

One of the greatest forces for conservation and well-being of our social and economic life is the cracking process developed by the oil industry. Cracking ramifies in many directions and profoundly affects not alone the oil but also the automotive, airplane, chemical, alloy steel, instrument, and gas and coal industries. In fact, new industries and new products have been founded upon the cracking process.

The primary function of cracking is to produce high antiknock gasoline. As a product of this operation, the oil industry has developed motor fuels up to 100 octane rating, which have given greater motor efficiencies. As an illustration, it has been calculated that if the China Clipper ship were motored to utilize 100 octane gasoline, it would increase its pay load by 1,900 pounds.

The automobile industry during its early years gave indications of exceeding the capacity of the oil industry to supply it with motor fuel. This threat was a spur to the technical men to devise methods for increasing the yield of

gasoline from crude oil. The cracking process has not only provided the means for increasing gasoline yields but also its quality.

In the past 15 years the number of motor cars has increased from about 9,000,000 in 1920 to more than 26,000,000 as of January 1, 1936; while the motor-fuel consumption increased from 109,000,000 barrels to more than 432,000,000 barrels per year. In addition, the average motor-compression ratio increased from 4 to 6.2. This is of tremendous significance from an economic standpoint in that the efficiency of motors has increased more than 30 percent during this period. Speeds of transportation have more than doubled, primarily due to improved antiknock value of the gasoline and better design of motors thereby made possible.

Mr. BEDDOW. And again, on page 6, I have presented some more statistical data that is a matter of record.

Mr. COLE. Yes, sir.

Mr. BEDDOW. These and other statistical data are further verified by reference to the report of the Energy Resources Committee to the National Resource Committee on page 153. Mr. Glenn E. McLaughlin, of the bureau of business research in the University of Pennsylvania, therein emphasizes the problems faced by the refining industry.

It has been necessary to develop equipment and techniques capable of handling a great variety of crude stocks and producing products meeting the demands of an ever-changing market. An important part of this problem has been the processing of residual materials to convert them into more valuable petroleum products. In 1880, for instance, 75 percent of the refined products recovered was kerosene. At this time, the United States Bureau of Census reports showed 12½ percent of the crude unaccounted for, which probably represented mainly evaporation of the light fractions. These fractions, which for a long period in refining development were lost, now become the basis for the most valuable products made in refining.

Similarly, Mr. McLaughlin has indicated the progress made by refining engineers in processing natural gas for the production of natural gasoline and at the same time preparing the gas for transportation.

Mr. COLE. Have you the article by Mr. McLaughlin to which you refer?

Mr. BEDDOW. I have it in our files. I do not have it here on my desk. I can point it out to you in just a moment.

Mr. COLE. I mean the paper from which you prepared these remarks of Mr. McLaughlin.

Mr. BEDDOW. I referred to the pages in this article here, in Mr. McLaughlin's report of the Energy Resources Committee to the National Resources Committee, on page 153. I did not bring that article with me, but I have referred to him also as to page 160 and page 163.

Mr. COLE. All of these papers, or many of them, were prepared in the same office, were they not?

Mr. BEDDOW. These are all mimeographed copies of my original article.

Mr. COLE. They were all mimeographed from the same source?

Mr. BEDDOW. Yes.

Mr. COLE. I understood that was to be done in order to cover the different subjects and not to have any overlapping. I wonder if anybody else in the room has the McLaughlin article to which you refer.

Mr. BEDDOW. I do not know whether they have or not.

Mr. COLE. That is all right.

Mr. BEDDOW. But on pages 160 to 163 of his article I would like to read this little part here. Again on pages 160-163, Mr. McLaughlin has shown by authentic reference the progress made since the advent of cracking and the use of polymerization. I wish in particular to call your attention to the graph shown on page 161, figure No. 11. You will note that the graph is intended to show the period from the year 1920 to 1935, or that period where cracking was in its infancy to 1935, when the demand for more and higher octane gasoline really gets started in a big way. This graph bears out the figures quoted by Mr. Egloff in his report to the Oil Petroleum Congress in Paris in the month of June 1937. Likewise, the American Petroleum Institute's estimate that without cracking, the 1937 demand for petroleum products would have required 1,000,000,000 more barrels of crude oil, emphasizes the benefits which have accrued through development of refining technique.

We have outlined above the past progress made in refining and its contribution to the conservation of crude oil. Assurance of increased developments in the future to the same end is found in hydrogenation, catalytic cracking, polymerization, isomerization, alkylation, and their numerous variants, which can be expected to become even more effective in the immediate future. The dispersion, transformation, and recombination of molecules effected by these processes result in savings by either converting previous wastes to useful purposes or by permitting increased power from a unit of given proportions.

I skipped the rest of that statistical data.

I wish to direct your attention to the trend of petroleum selling prices which has accompanied the improvement in technique we have discussed. The Bureau of Labor Statistics index of wholesale commodity prices uses 1926 as its basis for comparative purposes, and thus assigns an index of 100 to prices existent then. The Labor Bureau index for wholesale prices of petroleum products decreased from 100 in 1936 to 55.9 in 1938 for a percentage decline of 44.1 percent. During the same period the decline in price of all commodities was 21.4 percent. These figures indicate the unit savings passed on to the public in addition to the increased quality of the products sold the public compared to the savings realized in other products. During the same period, California refinery gasoline prices declined from 11.3 cents per gallon to 7.1 cents for a decline of 37 percent. The record measured by these statistics indicates in my opinion that the petroleum industry has served the public well through making available higher quality products and at the same time permitting the public to buy them at substantially lower prices.

Mr. WOLVERTON. That 7.1 is the very figure I used.

Mr. BEDDOW. Yes, sir.

Mr. WOLVERTON. And yet the Texas price is 5.4.

Mr. BEDDOW. As I said before, my only explanation—I am 3 years in the State. My only explanation for that difference is the fact that probably in previous times there was an overabundance of heavy oil produced in this State, but I—

Mr. WOLVERTON. And it could occur again if there was not proper limitation of the production.

Mr. BEDDOW. That I am inclined to believe personally will not occur, because I believe we oil men are learning something as we go along on what is necessary.

Mr. WOLVERTON. Your statement that it will not occur again is probably a case of the wish being father to the thought; but, nevertheless, the possibility is there so long as there is no limitation of production by law; as long as you depend on voluntary curtailment, as pointed out by Mr. Pemberton in his letter to the Atkinson committee.

Mr. BEDDOW. Well, I—it probably would be just as easy for you to get me all balled up as it was Mr. Pemberton.

Mr. WOLVERTON. No; that would not be as easy for the reason you are not testifying one way at one time and another way at another.

Mr. BEDDOW. The point I would like to leave with you gentlemen is I believe we are sincere when we say that we realize the gravity of the situation and that if given a little time we can and will further bring about a control of this industry that will not make it necessary to have so much Government control, so that we will not know from one day to another what to expect, because it seems like it is almost impossible to make these Government agencies work close enough to the small or so-called independent or small refiner.

Mr. WOLVERTON. Well, of course, there has been some reference made to the N. R. A. During yesterday's session I sought to understand in my own mind aside from administration what was the difference in basic principle between N. R. A. and what you are doing now with your central committee. In other words, regardless of what might be said for or against the N. R. A.—and I frequently hear people rail against the N. R. A. in Congress who voted for it. [Laughter.] I am not making any personal allusion—but the basic principle of N. R. A. was to stabilize industry at a time of falling prices. I think it was about that time that the oil industry was getting 10 cents a barrel or something like that in Texas, at least there was a time when it did.

Mr. BEDDOW. Yes.

Mr. WOLVERTON. And there was general accord of the necessity of the N. R. A. or some Federal protection against dropping prices and to stabilize industry. I think even those who voted for it and were favorable to it at the time changed their opinion with respect to it at this time largely because of the manner in which it was administered. It attempted to do too much. I think General Johnson admits that fact, but the basic principle was to stabilize industry throughout this country, not only oil but all industry.

Mr. BEDDOW. That is right.

Mr. WOLVERTON. It sought to do just exactly what you are attempting to do with your central committee. By limitation of production you are trying to stabilize your industry. Now, in all of our hearings 5 years ago we were asked to pass these laws because of a fear of a chaotic condition that might result. In other words, the thought was to stabilize the industry. They did it in the name of conservation, but I never lost sight of the fact that the industry itself was interested very largely from the standpoint of stabilizing its industry. I am not condemning it nor criticizing it at this time; I am just stating the facts as I see them.

Now, as I take it, all of these things you are fearful of, especially as to how far the Government might go in what it thought necessary to stabilize your industry or how far they might go in the direction or for the protection of the ordinary consumer in stabilizing your industry. You folks want to have the full say as to how you shall

stabilize your industry—maybe you are right—I don't know; that is what we are here to learn about, listening to everything that you have to say on that subject.

Mr. BEDDOW. You might say from a personal standpoint, I believe, that there are many people that feel a good deal like I do in regard to this almost overwhelming volume of new laws that are being passed—that there are many of those fellows in the common walks of life that cannot grasp the thing as fast as it is going. I feel that there is so doggoned many laws being passed that the public is unable to digest them. I believe that most of us are ready and willing to abide by the laws, and also that we want to abide by the laws, but we cannot lose sight of the fact that we must protect our own industry, our own lives, and that these laws that are being administered by different bureaus, the ordinary people are not able, in my estimation, and get the protection of those laws, because we cannot furnish enough—what will I say—lawyers, to keep us protected; but it has gotten to where it looks like we have to have a lawyer at our side every time or all the time to tell us what we can or should not do.

Mr. HOLMES. And most of the regulatory laws have been cock-eyed, haven't they?

Mr. BEDDOW. Yes.

Mr. COLE. And for Mr. Holmes' benefit you are talking about your own company lawyers now?

Mr. BEDDOW. I am talking about all of the conditions that are making it necessary for us people to have to depend on so much legal advice that we do not have a chance to develop our own ideas.

Mr. HOLMES. I had reference to the administration of these laws. However, you bring a thought to my mind about lawyers. I have the distinction of serving with four lawyers on this committee, and I am just an ordinary layman; and I think they are the finest group of men that I have ever associated with.

Mr. WOLVERTON. As one of the lawyers, permit me to say we are glad to have the benefit of your business experience.

Mr. HOLMES. Having had association with trade-organization work for over 30 years, I call to your attention one provision in the Recovery Act that wiped out or nullified the Sherman antitrust law which, in my opinion, has outgrown its usefulness, because it is not in any way, shape, or manner, doing what the act was intended to do. In my opinion, it is phrased in such language that it can be applied only in certain specific instances. That one provision in the Recovery Act was all that was necessary for me, and I voted for it with the desired hope that it would be beneficial to all industry.

You told us yesterday or the day before about the group of men who had administered the act out here. In my line of business they set up a coordinator, and I went down to see him after he opened his Washington office. He was an auditor by profession, with no experience in manufacturing, and yet he was administrator of our group.

I do not hesitate to say that we have developed in Washington today a system of remote control of business. Even the President is inclined to take control of the industry of California by remote control.

I want to insert in the record here two telegrams sent from Washington, D. C., by the President to Governor Olson, of your State,

that illustrate the point of remote control that I am making. They indicate a desire in Washington to direct your own internal affairs.

Hon. CULBERT L. OLSON,

Governor of California, State Building, San Francisco.

I am in full accord with the favorable endorsement by the Navy and Interior Departments of the California oil and gas conservation law, the Atkinson bill, which will be voted upon at the special election on November 7. You know, as I do that an adequate supply of oil at reasonable prices is vital to the well-being of the people of California and the whole Nation and also that oil is of paramount importance to the national defense. Overproduction means waste, and waste means higher prices, both for domestic consumption and for purposes of national defense. My view is that Atkinson law, if put into effect, will contribute to best interests of the State and of the Nation. You have my best wishes in your efforts to give this law a chance to prove its effectiveness.

FRANKLIN D. ROOSEVELT.

And to follow up that telegram, another one came along from the White House, Washington, D. C.:

Governor OLSON,

Fresno, Calif.:

Lest there be any question about the attitude of the Federal administration in regard to the oil-control bill to be voted on in California on Tuesday, let me set it forth in words of the utmost simplicity.

First, we believe its adoption will help all of the many oil-producing States to regulate national production and stabilize employment in this vital industry.

Second, as Commander in Chief, I believe it will help national defense, and therefore benefit the Army and Navy.

You are at full liberty to use this telegram, and I send you my warm regards.

FRANKLIN D. ROOSEVELT.

Here you have an illustration again where the Federal Government carries out its domineering influence to guide the destinies of a State. And with these activities I don't wonder at all you men are fearful of the ultimate results of national legislation to control your industry. I am not in your business. I am a consumer of oil. I represent, I suppose, on this committee, the consumer viewpoint, because we produce no oil in Massachusetts.

So that whatever legislation may be enacted to cover this situation—and if the emergency exists—from a national defense or a consumers' standpoint, it should be phrased in such language that would still leave all the control of industry in each respective State. That, to my way of thinking, would be common-sense legislation. We should see to it that Federal domination, or any effort at dictatorship in this great country of ours, should not take place.

Mr. COLE. I want to offer this brief observation: If my genial and capable new associate on this committee, Mr. Holmes, who has been with us as a member but a short time, had been with this committee in 1934 he would have enjoyed the experience with us of being associated with Governor Landon when he advocated Federal control—not State control, but Federal control—to a very considerable extent. President Roosevelt prefers the States to handle this problem, as his telegrams indicate, and that is still his view; but if the States are unwilling to look to the needs of the Nation as a whole, if waste is prevalent in the production of our petroleum, he advocates Federal legislation. If the people of California only knew of the intense and sincere interest President Roosevelt and Secretary Ickes have in this great State, their expression of interest in the recent November election would, I believe, have been more appreciated.

Mr. BEDDOW. In conclusion let me say that over the period of years since 1920 when I first became associated with oil refining and before that to early boyhood when I started in the coal mines, I have come to have a very high regard for the Bureau of Mines and the many men of high caliber who have directed the work of that Bureau, but I must admit that I feel that if we had had to wait until we could get a ruling from the Bureau before we could make a decision as to how to solve many problems, neither the coal nor the oil industry would have attained the position they now have in the march of progress.

Mr. COLE. Thank you. We have remaining Mr. Whaley and Mr. Johnson of this group. Is that correct, Mr. Johnson?

Mr. JOHNSON. That is correct.

Mr. COLE. Two more. The committee made some——

A VOICE. And Mr. Kluth.

Mr. COLE. The committee made some engagements this afternoon which will take us to several of the producing fields in this vicinity, engagements which cannot be broken at this time. You gentlemen realize how next to impossible it is for the chairman to gage the time that witnesses will take. [Laughter.] These hearings are held solely on the basis of requests which come to me. I thought it would be possible to conclude our hearing this morning. But to give everybody a full chance, an opportunity to be heard, we will recess at this point until 7:30 o'clock tonight in order to hear at night session the additional witnesses. Recess until at 7:30 tonight.

(Whereupon a recess was taken until 7:30 p. m. of this day.)

EVENING SESSION

Mr. COLE. All right, gentlemen, the committee will come to order.

The committee took a little longer this afternoon than we expected, and have been back at the hotel just long enough to wash, get a glass of water, and come down without keeping you waiting to proceed with the hearing. We intend to eat a little later. So you can appreciate the fact that we have an appetite for something besides oil at the present time.

This afternoon we had the pleasure of visiting through the fields close to Los Angeles, Beverly Hills, Inglewood, Rosecrans, Dominguez, Signal Hill, Seal Beach, Huntington Beach, Torrance, and Lawndale. I think that is about all—yes; and Baldwin.

Now, as I understand, tonight the only witness remaining who requested time from the committee prior to today is Mr. Johnson and one other member of your group.

Mr. JOHNSON. Mr. Kluth and Mr. Whaley. I have his statement, which he asked me to hand in, in view of the strenuous circumstances that you gentlemen have been through.

Mr. COLE. Is Mr. Whaley here?

Mr. JOHNSON. No; he is not.

Mr. COLE. Do you want to file Mr. Whaley's statement at this time?

Mr. JOHNSON. Yes, sir.

Mr. COLE. Mr. Whaley is with the Barnsdall Oil Co.?

Mr. JOHNSON. That is right.

Mr. COLE. The statement of Mr. W. C. Whaley will be received and made a part of the record.

STATEMENT OF W. C. WHALEY

Mr. WHALEY. My name is W. C. Whaley. I am vice president and general superintendent of Barnsdall Oil Co., which position I have held for the past 9 years. During the past 25 years I have been engaged in the operating and production departments of the oil industry, serving in practically all positions of these departments.

Since the Barnsdall Oil Co. operates in 10 California fields, ranging from the low-gravity, shallow areas of the San Joaquin Valley to the very light, deep oil production at Newhall-Potrero and Rosecrans, I have had reasonably wide experience with California drilling and production practices. Problems met by the Barnsdall Oil Co. may justifiably be considered typical of the problems met by other California operators, and the Barnsdall's drilling and production methods can be considered typical of the California industry as a whole.

Perhaps the simplest way to point out the progress made by the oil industry in preventing avoidable waste is to describe modern methods and equipment used to drill and produce an oil well.

Modern drilling reaches much greater depths than common in the past, hence not only larger surface equipment but better quality drill pipe and bits are required. Any failure in these tools not only results in a costly fishing job but also presents the hazard of losing the hole and leaving an oil zone unprotected, with consequent possibilities of loss of recoverable oil.

Probably one of the major advancements in drilling practice, as it relates to avoidance of waste, has resulted from the study of drilling fluids. The relentless attention given to the weight of the mud circulated in the hole has been responsible for reducing the number of serious gas blowouts, with their resultant loss of reservoir pressures as well as oil itself. This research has also shown that the addition of colloidal material to the mud reduces the amount of water entering producing sands. Since water filtering into these sands blocks the flow of oil into the well and thence to the surface, production has been greatly increased by using fluids with a high percentage of colloids.

Improved coring equipment permits much better recovery of the formation penetrated, thereby allowing a better study of the producing sands, and increasing our knowledge of their characteristics. In addition, the last 10 years have seen the introduction of the electrical survey, a device that records the sand and shale zones of the well. This information is invaluable in determining the exact zones to produce and the proper point at which to cement casing to protect the oil sands from water, which would drown the productive stratum and reduce the recovery of oil.

This brings us to the problem of designing a string of casing for the well. Manufacturers now supply the industry with a wide range of sizes and grades from which the operator selects the most efficient combination. Since the life of the well depends on the ability of the casing to withstand high pressures and corrosive action of the formation, the industry exercises the greatest care in its selection to insure that the type used is the one which will last longest. Thereby the danger that a failure of the casing will result in abandonment of the well before all the recoverable oil has been withdrawn from the formation is minimized.

When the casing is run into the well, it is necessary to cement it in order to form a seal between the casing and the formation and prevent water from flooding the oil sand. Due to the high temperatures and pressures encountered in deep wells, the industry, with the cement manufacturers, has developed entirely new types of cement to successfully form this bond.

Before any oil can be produced from the well, a water shut-off test is made to determine conclusively that all waters above the oil string are excluded from the oil bearing formation. The oil zone is then carefully prepared at great expense and a liner of drillable material is placed in the well, with an analysis of the sand grains determining the size of the perforation to be used. After this liner has been hung opposite the oil sands, tubing is placed in the well. Since the tubing size and depth materially governs the gas-oil ratios, considerable attention must be given to the selection of this equipment in order to accomplish the utmost in conserving reservoir energy.

The wellhead equipment is then installed. Selection of wellhead equipment is always made with an eye to the prevention of blow-outs with their resultant waste of gas, oil, and reservoir energy.

The well is now ready to start producing. It is only necessary to reduce the pressure in the well below that in the formation. In years past this was accomplished by lowering the fluid level by swabbing, which always created a fire hazard. Because of this danger, the practice of "swabbing a well" has practically disappeared, and in recent years the well fluid has been lightened by circulating first water, then oil, and, if necessary, gas. The latter procedure has been found to be more efficient and less wasteful, because it permits of greater control over the well.

The productive capacity of the well is determined as soon as it comes on production not by flowing the well wide open with loss of gas, oil, and reservoir energy, but by running a depth pressure recorder at varying low rates of production. The production is gauged and sampled by means of closed type meters and sampling devices, and the oil passes into tanks equipped with a vapor recovery system, thereby avoiding the loss to the atmosphere of the lighter hydrocarbons.

Periodic depth-pressure surveys acquaint us with the particular characteristics involved in producing a given well.

These data are constantly checked and rechecked, so that we may be certain that the well is producing at as near optimum rates as conditions permit.

When the reservoir energy drops to a point where the well will no longer flow naturally, the second phase of production is commenced—that is gas lift. Continued studies of periodic bottom hole pressure surveys aid in applying flow valves and intermitter equipment in the most efficient manner, so that the greatest possible amount of oil is recovered.

The third stage, pumping, involves the selection of proper sucker rods and pumping units. The most efficient operation of this equipment is based on further studies of bottom hole pressure and fluid level determinations.

At some time during these three periods of productive life, edge water will reach the bore hole and require surface treatment to sep-

arate the oil from the water. This is accomplished by passing the fluid through a closed dehydrator or wash tank. When this encroaching water impedes the entry of oil into the well remedial work must be done to exclude the water. The procedure is to locate the source of water, drill up the liner, place a cement plug opposite the water entry, run another liner, and place the well back on production. Possibly several repair jobs will be necessary during the life of the well, all of them made with but one purpose—to recover more oil.

Eventually, and in spite of the best engineering information available to the industry at any given time, the reservoir energy of the well will drop to a point where no more oil is forced into the bore hole, or edge water completely engulfs the producing sand, and it will then become necessary to abandon the well.

I have briefly reviewed the present methods and equipment used in drilling and producing oil wells for a twofold purpose, first, to show that the oil industry is energetically developing more efficient, hence less "wasteful" methods, and, second, to furnish you at least a partial background for my succeeding remarks, which have to do with the practical difficulties, from an operating standpoint, of applying the provisions of H. R. 7372 to the production of oil.

In order to carry out its expressed policy of conserving oil resources, H. R. 7372 sets forth certain engineering factors which are to be given consideration by the Commissioner in his determination as to whether wastage of oil exists in a given oil-producing area.

There is no doubt that the oil industry is as interested in the conservation of oil as is the Federal Government, if for no other than purely selfish motives since it is necessary for an oil company to maintain its reserves of oil if it is to remain in the business. However, there are many practical difficulties in applying the engineering factors in H. R. 7372.

For example, the bill provides under paragraph (1) of subsection (b) of section 6, that the Commissioner shall consider and make proper provision concerning, as a factor of waste—

The spacing, location, drilling, completion, or production of any well or wells so as to cause waste of reservoir energy.

Practical difficulties in the application of these factors immediately become apparent upon examination.

I. SPACING AND LOCATION OF WELLS

It is considered that there are economical advantages to be gained in following a wide spacing program of development as contrasted to the "town lot" pattern of well spacing. That California operators recognize this fact is evidenced by the one-well-to-20 acre and one-well to 40-acre spacing now followed wherever possible, and illustrated by the drilling programs in all of the new San Joaquin Valley fields.

To put into effect a wide-spacing program requires, however, that land ownership be in large tracts, or that some form of agreement be reached with landowners. This has been attempted in many of the town-lot fields discovered in California, with a considerable degree of success. Since property ownerships are involved, and since the American doctrine of property ownership is a question of law, this

committee has more knowledge of the difficulties involved in requiring well-spacing or unit-operating plans than has the present witness.

Assuming, however, that it were possible for the Commissioner to enforce a wide-spacing plan of development, there is as yet no known means of determining the exact well spacing which would result in the greatest ultimate recovery.

Among petroleum engineers and petroleum geologists there has been no general agreement as to whether maximum ultimate recovery can be obtained with close well spacing and wide-open flow or with wide spacing and restricted flow.

This fact is cited in the statement filed with your committee by H. C. Miller, senior petroleum engineer, and G. B. Shea, petroleum engineer, of the United States Bureau of Mines, on page 351 of the printed report of the hearings in Washington during November 1939 under a section entitled "Trend of Well Spacing."

Quoting Mr. Miller and Mr. Shea:

Whether former wide-open-flow methods and close spacing were wasteful in inadequately draining the reservoirs of oil and in leaving large quantities of oil unrecovered in the reservoir sands when the fields reached their economic limit of production is a debatable question. Although the preponderance of opinions expressed at meetings of engineers and published in the technical press seems to be that such practices generally have been inefficient, cognizance should be taken of exceptionally high recoveries from some fields that were produced wide open throughout their flowing lives from wells closely spaced and are now virtually depleted of oil and gas.

For instance, the Signal Hill oil field, near Long Beach, Calif., is a notoriously closely drilled field, derricks being erected on 50-foot lots. Yet oil production has totaled approximately 650,000,000 barrels to date, equal to approximately 500,000 barrels per acre, there being 1,300 productive acres in the field. In spite of the field's production to date, however, Signal Hill is currently producing approximately 20,000,000 barrels per year and is the second largest producing field in the State.

The above is cited to illustrate the point that wide well spacing does not necessarily mean greater ultimate recoveries of oil.

II. DRILLING AND COMPLETING WELLS

It has sometimes been alleged that oil waste results from the improper exclusion of water due to improper casing programs. This allegation cannot well be made in respect to California well completion since every well in the State before completion must pass State inspection to prove that the water is excluded. In addition, the State will not give its permission to drill a well until the casing program has been determined to be a proper one to exclude all water from the oil zones. These matters are already governed by a State statute which is rigidly enforced by the California Division of Oil and Gas.

Subject to the rules of the division of oil and gas and in the drilling and completion of wells, many engineering problems arise which demand immediate solution. Delay in many cases might result in the complete loss of the well or loss in the ultimate recovery of oil. The engineers of the division are always available to settle such problems, having the current facts immediately available.

III. PRODUCTION OF WELLS

H. R. 7372 presumes that the Commissioner will prescribe optimum rates of oil withdrawal for all pools in the country. I am of the opinion that there is no exact, or even nearly exact, means of determining the optimum rate of oil withdrawal for any given pool, even though through core analysis and reservoir studies we are every day gaining more knowledge on this subject. Some petroleum engineers tell us that the "early day" rates of withdrawal of 10 barrels per acre-foot daily, or even higher, were extremely wasteful. They are of the opinion that the daily rate of withdrawal should be on the order of from 0.01 to 0.50 barrel per acre foot, but many of the factors involved in these determinations are controversial, and some of the factors to date are actually indeterminable. A few of these factors are: porosity, permeability, saturation, kind of oil, amount of gas in solution, amount of free gas, amount of connate water, formation pressure, proximity of edge water, and available energy from the source of the edge water. Some of these factors, such as porosity and permeability, we have found to vary greatly over short vertical intervals of a few inches to a few feet. Also, we have found that these same factors vary laterally from one well location to the next adjoining location.

To further illustrate the difficulty facing the Commissioner under this bill in making this very important determination, please permit me to quote from the report of H. C. Miller and G. B. Shea, on page 383 of the printed report of your Washington hearings:

Recent studies in fields where production rates were controlled to the extent that the high-head edge water encroached into the oil sand at approximately the same rate as the rate of withdrawal of the oil showed that a large percentage (80 to 90 percent and more) of the oil had been recovered from the sand by the encroaching water. Laboratory experiments by Bureau of Mines engineers also showed oil-recovery percentages as high as 85 percent when water displaced the oil in oil-saturated sand. The experiments showed further that in highly permeable (loose) sand higher percentages of oil recovery may be expected than in tight sands, and for any given sand the percentage recovery was slightly greater for rapid rates of flow than for slow rates. This latter finding, which still must be verified by more experimentation, is somewhat contrary to the opinion by many engineers, in that it has been thought for some time that at slow rates of water encroachment oil recoveries would be higher than at more rapid rates.

From the above citation it is seen that United States Bureau of Mines engineers have found conflicting evidence on this most important question that your Commissioner will have to decide for every pool: namely as to whether the highest ultimate recovery is obtainable under high rates of water encroachment or under low rates of water encroachment.

IV. GAS, OIL RATIOS

The bill provides under section 6 (b) (11) that the Commissioner shall consider and make proper provision concerning, as a factor of waste.

The operation of any well producing crude oil with an inefficient gas-oil ratio.

It is presumed that the Commissioner would be expected to order all wells in a pool to be limited by a specified "maximum" gas-oil ratio, although the wording could be interpreted to mean that all wells would be made to produce to their "optimum" gas-oil ratio.

By "optimum" gas-oil ratio is meant the most efficient or lowest gas-oil ratio.

In the former case it would be approved to produce a well as long as its ratio of gas to oil did not exceed a specified "maximum" figure of, say, 2,000 cubic feet per barrel for all wells in the pool, at which time the oil production might be thereby limited to, say, 50 barrels per day. In the second case it might be determined that a well was producing its "optimum" ratio when the well was producing 1,000 cubic feet per barrel, and it would then be expected to hold to that ratio, which, in oil production, might be as high as 500 barrels per day.

Whatever interpretation is made by the Commissioner, it will be very difficult to have any general order apply to all wells in a pool in California because most pools have wells that vary tremendously in gas-oil ratios. Any order to be effective and apply uniformly to all wells in a pool might have the effect of causing some wells to be entirely shut in, and the question then arises as to what would take place if some peculiarly located property had all its wells closed down by the order. Under the present California law the lessor would have cause for damages against the lessee for not protecting his property from drainage, yet the operator could do nothing if he were complying with a Government order. He would be placed in the position of having to choose between being sued by his lessor, or violating a Federal order and running the risk of having to pay a fine of \$1,000 per day and face imprisonment for 2 years.

CONCLUSION

In concluding, permit me to say that in my opinion I have demonstrated that the spacing of wells is not, nor can it be, such an exact engineering science that anyone can guarantee that any one particular well-spacing program will result in a greater ultimate recovery than any other well-spacing program or that one well-spacing program will result in the elimination of waste over another well-spacing program; that H. R. 7372 is unnecessary legislation insofar as California is concerned, in respect to elimination of waste due to water or improper casing programs since these matters are already governed by a statute which, as heretofore said, is rigidly enforced by the division of oil and gas; that H. R. 7372 imposes an impossible task on the Commissioner and makes him superhuman when, under the act, he is to prescribe an optimum rate of withdrawal from all the pools in the country, since the Government engineers who have already testified are not in accord as to the proper rate of withdrawal; that because of natural reasons there are no two wells alike, and optimum gas-oil ratio is impossible.

Mr. COLE. I will be very glad to file it. If you have copies of the statement you can file them with the committee.

Mr. JOHNSON. He only gave me one copy.

Mr. COLE. All right.

Mr. JOHNSON. I think we can get more if you wish.

Mr. COLE. Well, we might read them on the way back to Washington as it will be some time before the printed record is out.

Mr. JOHNSON. If you will tell me where to mail them to you in San Francisco I will be glad to do that.

Mr. COLE. Very well. I will be glad to do that. Very well, Mr. Johnson. Do you have copies of your statement, Mr. Johnson?

Mr. JOHNSON. I have but one copy. The typing was just finished this morning and I made some pen and ink corrections on the copy I am about to use. I would appreciate it if this copy could be returned to me to make the corrections and then I will give them to your committee.

Mr. COLE. Mr. Johnson, you may proceed with the usual introductory statement.

STATEMENT OF C. A. JOHNSON

Mr. JOHNSON. My name is C. A. Johnson. I am appearing for Oil Producers Agency of California, of which I am a vice president. I have managed two small—

A VOICE. We cannot hear the gentleman back here. We would like to hear him back in the end of the room.

Mr. COLE. If we put the witness back there we cannot hear him up here. The microphones are not connected tonight. I think maybe if the witness will turn a little so as to give others in the room the benefit we can hear you very well. We can hear you I am sure. Is that satisfactory?

Mr. JOHNSON. I have managed two small independent producing companies for the past 17 to 19 years. All members of the agency are independent producers, with the exception of a very few royalty owners.

Gentlemen of the committee, I greatly appreciate the opportunity of appearing before you, which I do as a layman of the oil industry, that is, I am neither a lawyer nor an economist, and if I mention matters which verge on questions pertaining to either of those professions. I shall merely be stating my conclusions as a layman, not qualified to discuss them as a member of the appropriate profession would be able to do.

I am presenting my testimony in three parts; that is, first, discussion of the bill; second, application of the bill; and third, some attainments possible under the bill.

Part 1. Discussion of the bill: As a result of examining H. R. 7372, I have reached certain conclusions in regard to it and I am convinced that its enactment would not further the conservation of petroleum by the elimination of wasteful practices and methods as contemplated in the "Findings and declaration of policy" of the bill. By that I mean to say that I believe the progress being made by the industry itself would not be accelerated by Federal Government control. On the contrary, it is possible, and I think it is likely that such progress would be retarded.

I do not see how anyone at all familiar with oil production, who attempts to visualize an effort to make practical application of the provisions of the bill, can reach any other conclusion, and many experienced petroleum engineers, as well as practical men, with whom I have discussed the subject, agree with this view. The powers with which the Commissioner would be clothed by the terms of the bill are, to some extent at least, of an arbitrary nature. I presume this was deemed necessary to the purpose of the bill. At any rate, it would be unwise to assume that the power might not at times be

arbitrarily exercised. For these reasons I feel deeply concerned with respect to results which might follow enactment of the bill, and this I believe is true of the industry as a whole.

There are several angles to the impracticability of administering the provisions of the bill so as to attain its declared objectives by the application of accepted engineering methods, two of which I desire to emphasize in support of my testimony. I refer to the fact that the bill will not displace the law of capture, and that it does not permit the Commissioner to enforce unit control of operations, both of which conditions Government witnesses appearing for this bill have testified are essential to a realization of the avowed purpose of the bill, i. e., conservation. In support of that statement, I will first quote from the record testimony of Mr. Ralph J. Watkins.

Mr. Chairman, I have several quotations under most of these subjects, and in order to conserve time, I will, if it is satisfactory to you, read but one or two which I deem most essential, with the understanding, however, that the others will be in the record.

Mr. COLE. Very well, sir.

Mr. JOHNSON. Page 468:

The basic conclusion of the National Resources Committee in the energy resources study was that conservation in this industry means scientific management of oil and gas pools. Although the right of capture has been modified somewhat, it needs, in the words of the National Resources Committee, to be completely displaced by a thoroughgoing law of ownership in place, which would allot to each producer that proportion of the oil and gas in the common reservoir which underlies the land he owns or controls.

And then the testimony of Mr. Ben E. Lindsly, recorded on page 485:

I do not see how the bill can accomplish the things that it proposes to accomplish without some kind of unit control of oil fields. It is just impossible; it cannot be done.

Mr. Watkins was chairman of Energy Resources Committee and director of its research staff. On page 469 of the record he summed up the import of the findings of the National Resources Committee study in paragraphs numbered one to six, inclusive. In this summary the rule of capture is criticized, and, inferentially, unit control is recommended. Also, in "Energy Resources and National Policy," the report of the "Energy Resources Committee" to the "National Resources Committee" of which latter committee Hon. Harold L. Ickes, Secretary of the Interior, was chairman, it is made perfectly clear that the committee strongly recommends unitization as a means of preventing waste. Nearly nine pages of that report (pp. 216 to 225) are wholly devoted to the subject, and frequent and extensive references to it are made elsewhere in the report. On page 24, second column, of "Energy Resources and National Policy," is identically the same language as used by Mr. Watkins in the latter part of his testimony which I have quoted as appearing on page 468 of the record.

The quotations I have read are conclusive on the points of displacement of the law of capture and compulsory unitization being essential to the purposes of the bill, but it is quite obvious that the provisions of the bill could not accomplish unitization with respect to existing fields, and on that point I should like to quote from the record as follows:

Mr. WOLVERTON. From the testimony that came before us day before yesterday, it would seem that there were very few pools that were now being operated on the unit system. I think if I recollect correctly, it was 185 pools of 3,000 existing pools. Thus, while there might be agreement as to the advisability of having such a system, yet, for some reason or other it seems to have been difficult to place in operation.

Secretary ICKES. Difficult to make it retroactive.

Mr. WOLVERTON. I beg your pardon.

Secretary ICKES. Difficult to make it retroactive.

Not only is unitization of old fields not authorized under the terms of the bill but it is equally clear that unitization could not straightforwardly be required with respect to new fields under the terms of this bill or any Federal bill, and that unitization could not be accomplished at all except on Federal lands.

I shall again quote from the record. I have some quotations here by Mr. Watkins which I will not read, but I will read one from Mr. Ickes' testimony appearing on page 540:

Mr. WOLVERTON. I did not understand that that law—

He was referring to the law of 1935—

went to the extent of giving authority to require such an agreement on private land.

Secretary ICKES. Public lands.

Mr. WOLVERTON. That is quite different.

Secretary ICKES. There is no law applying to private lands.

I have some more quotations under that. It appears also that there is no intention under the provisions of the bill to take jurisdiction over unitization. This view is confirmed by testimony of Secretary Ickes, which I quote from page 540 of the record:

Mr. WOLVERTON. Then I assume there is no intention under the provisions of this bill to take jurisdiction in matters of that kind?

Secretary ICKES. That is correct.

There are then no State laws, and legislation by States is necessary if unit operations are to be compelled by law. This is evidenced by further testimony of Secretary Ickes, which I quote from the record. In response to a question by Mr. Wolverton, on page 539, as to whether why there are any State laws to compel unit operations, he asked if Secretary Ickes knew of any, and Secretary Ickes answered:

No; we have none.

Furthermore, in "Energy Resources and National Policy," there appears at the top of the first column on page 217, the following statement:

Effective unit operation requires the compulsory pooling of both operator and lease interests. Such an arrangement undoubtedly would require State legislation providing for unit agreements and new lease forms to replace present lease obligations.

And in the second column on page 235 of the same publication, under caption "Legal Basis for State Regulation," is the following statement:

State regulation of the oil and gas industry is based upon political power and its use to provide for the general welfare. It has been suggested that this power is already sufficient for the initiation of a system of unit operation, although a further change in the law of ownership of mineral rights would probably be required.

Nothing could be plainer than the disbelief of the "Energy Resources Committee" in the authority of the Federal Government to compel unit operations, but it did set forth its reasons for believing the State can do it. If only the States may legislate to compel the unitization which it has been testified is so essential to the successful administration of the bill, it seems reasonable to believe that the States would also insist on control of the fields in the event they required their unitization.

On the ground that the bill does not authorize the compulsory unitization deemed by its proponents to be so essential, if on no other, the bill must be rejected insofar as its effectiveness as purely a waste-prevention measure is concerned, in view of which it seems to me desirable to examine its possibilities in other directions, and inasmuch as either the prevention of avoidable waste or stabilization, or both, seem generally to be regarded as the objective of any plan which may curtail the production of oil, it appears to be in order to briefly consider the bill from the standpoint of stabilization.

There is not found in the language of the bill any reference to supply and demand. It is silent upon the subject of excessive, insufficient, or economic stocks of oil and refined products of oil. Such items as cost, price, profit, and loss are not mentioned. Secretary Ickes testified in effect that the bill places no limitation on production except as it may result from reducing physical waste, as follows—

Mr. WOLVERTON. Mr. Johnson, will you permit an interruption?

Mr. JOHNSON. Certainly.

Mr. WOLVERTON. I noticed from your statement you stated this bill should be rejected because it does not provide for unitization.

Mr. JOHNSON. Because it does not and cannot bring about unitization which it is stated is necessary to attain the objective of the bill.

Mr. WOLVERTON. If the bill sought to provide a system of unitization, would you favor it?

Mr. JOHNSON. No, sir.

Mr. WOLVERTON. Then you are placing your objection upon a basis that the bill does not go as far as the proponents thought it should and others are opposing it because it goes too far?

Mr. JOHNSON. You are under a misapprehension. I am leading up to something else to show what I think is possible to accomplish under the bill.

Mr. WOLVERTON. Well, I had an opportunity to look for just a moment at the statement you are making. You have not read all the quotations.

Mr. JOHNSON. No.

Mr. WOLVERTON. But I think, nevertheless, the fact is made plain by the proponents of the bill—and by the "proponents" I mean the Department of the Interior—that there was evidently no intention on their part to provide in this bill for any system of unitization.

Mr. JOHNSON. That is true.

Mr. WOLVERTON. You are probably aware and know of the case that they had made out as to the advantage of unitization.

Mr. JOHNSON. Yes, sir.

Mr. WOLVERTON. After they had done so I questioned them very minutely to ascertain whether, with the favorable opinion that they had of unitization, they were seeking to make it effective through the provisions of this bill, and as some of your answers have indicated—

Mr. JOHNSON. Your questions, Mr. Wolverton, have furnished me with the necessary material to prove what I am seeking to prove with regard to unitization.

Mr. WOLVERTON. I realize that. And it further illustrates the fact that my inquiries have not only been directed to California witnesses.

Mr. JOHNSON. And we also appreciate that, Mr. Wolverton. Reading from page 524 of the record, and this is testimony by Mr. Ickes——

Mr. WOLVERTON. May I finish?

Mr. JOHNSON. I beg your pardon, Mr. Wolverton.

Mr. WOLVERTON. In their opinion, the bill did not go to the point of providing for unitization, but their answers eliminated, I thought, the possibility of it being so construed by those who were opposed to the bill.

Mr. JOHNSON. Yes; it certainly did. Here is the testimony of the Secretary. The meaning is clear without reading the question, and so I merely include the answer.

In contrast with the several purposes of State laws, the bill H. R. 7372 is designed solely to conserve petroleum and to provide for cooperation with the States in preventing its waste. It does not authorize the Federal Government to limit, on the basis of demand, the oil production of the United States, or of any State, field or well.

In another answer he said that

As to the difference, in any plan there ought to be an apportionment, a proper apportionment; not a limitation. They are quite distinct. We do not propose to limit except in places like Illinois, for instance, where it will appear that they are producing more than they ought to be producing in comparison with other States which are limiting themselves as between themselves.

And on page 538 he said,

No. As I said in my statement, it would still be up to the States to determine what amount of oil could be produced, provided that there was no avoidable waste. There is the only limitation.

Other Government witnesses have stated in effect that the bill does not apply to economic waste, prices, or marketing. I quote from the testimony of Mr. David Hudson:

Page 71:

Mr. WOLVERTON. Does this bill directly or indirectly seek to control marketing?

Mr. HUDSON. No, sir; it does not.

Page 79:

Mr. HUDSON. The bill does not lay down any standard nor make any provision concerning economic waste, or on the question of prices or marketing in any of its phases. It is limited to the physical aspects of the production in the field.

Page 80:

Mr. WOLVERTON (continuing). So that the purpose of this bill is only to regulate production and has nothing to do with price control.

Mr. HUDSON. That is correct. There is no function as to that.

And from the testimony of Mr. Alfred G. White:

Page 163:

Mr. WOLVERTON. That is just what I wanted to bring out. Does this bill deal with physical waste or economic waste?

Mr. WHITE. I think the bill answers that question itself, if I recollect, in its language.

Mr. WOLVERTON. Physical waste?

Mr. WHITE. It has no relation to balancing market demand and supply, so far as I can find out.

And of Secretary Ickes:

Page 535:

I do not think there ought to be any power to fix prices under this bill or do anything that would have that effect.

Mr. WOLVERTON. That was in answer to questions that I had asked?

Mr. JOHNSON. Yes. I did not put in the questions because I thought the answers were clear.

Therefore although some of the Government witnesses have referred to the effect of stabilization on conservation, and vice versa, and it has perhaps been difficult for them fully to separate the two in their consideration of the subject, in view of the bill being silent on stabilization and of the positive testimony of its proponents that no phase of stabilization is contemplated by the bill, I am here assuming that it has no such purpose.

PART II. APPLICATION OF THE BILL

Inasmuch as the bill in its practical application would not effectuate the prevention of avoidable waste and is not drawn for the purpose of stabilization, it should be determined if the provisions of the bill are susceptible of being administered so as to attain any other possible objectives of which we have knowledge, and if so, what they are.

Section 11 authorizes the Commissioner to cooperate with the States, but from a reading of the bill it is clear, and testimony is to the effect, that the authority of the Commissioner would be superior to that of the States, and that it would prevail, and, therefore, from the point of view of the industry, and I presume also of the States, such cooperation cannot seriously be accepted as a major objective of the bill.

However, in my opinion, it would be a serious mistake to conclude that nothing at all could be done by the Commissioner under the provisions of the bill. The arbitrary power it confers upon him is considerable, in view of which it is my further opinion that there are ends which could be realized in the administration of the bill, some of which would be very objectionable to the industry and perhaps to a vast majority of the people of the country. It must be anticipated that the Commissioner would exercise in some way the arbitrary powers conferred upon him by the bill. He is specifically authorized to define technical terms used in the bill. His definitions would in turn determine in some degree the existence or nonexistence of waste. Therefore the Commissioner would not be bound by the accepted definition of technical terms as they are understood in the industry. These definitions are the result of long usage by men who have devoted their careers to the industry's technical problems. It follows that the vital standards of conduct in producing oil and natural gas are left to the determination of the Commissioner alone. Such broad powers could be exercised in ways to bring about almost any result that might be desired by the Commissioner as to the quantity of production.

PART III. SOME ATTAINMENTS POSSIBLE UNDER THE BILL

Mr. David Hudson testified that H. R. 7372 was prepared in conference with the technical people of the agencies of the Department,

namely, Petroleum Conservation Division, Bureau of Mines, Geological Survey, and he thought the Office of Indian Affairs, and that it was reviewed by Mr. Nathan Margold. All these are in the Department of the Interior. Of the 15 Government witnesses who appeared in support of the bill in the November 1939 hearing, 11 were men of position in the Department of the Interior (if Natural Resources Planning Board was in that Department; otherwise 10) and 6 of the 11 collaborated in the preparation of Report of the Energy Resources Committee to the National Resources Committee, of which latter committee the Honorable Harold L. Ickes, Secretary of the Interior, was chairman. This report is printed in Energy Resources and National Policy, a Government publication bearing date of January 1939. Another witness, Mr. Glenn E. McLaughlin, who holds a Government position with Securities and Exchange Commission, was author of part I, section II (which is the part pertaining to the petroleum and natural-gas industries) of Energy Resources and National Policy. Examination of that publication and of the testimony of these witnesses discloses a remarkable degree of harmony, which is not astonishing in view of the participation of a number of the gentlemen in the preparation of Energy Resources and National Policy. The circumstances warrant the belief that some of them also collaborated in preparing H. R. 7372.

I believe these facts and circumstances reasonably establish a harmony of objectives as between the authors of "Energy Resources and National Policy" and of this bill and its supporters who have appeared before you, a number of whom, as I have stated, collaborated in the Energy Resources study and the preparation of the Energy Resources Committee report, which relates not only to petroleum and natural gas, but also to coal and water power, as the principal sources of fuel and electrical energy, and makes it plain that its authors believe that certain uses now made of oil and natural gas constitute waste, and that such uses should be reserved for what is termed "lower grade" fuels and water power. On page 90, beginning at the bottom of the first column is this statement—I won't read all the statement, because it is rather long, but what is stated will be in harmony with the entire statement which refers to what it considered a reasonable cost for the transportation of a thousand cubic feet of gas 100 miles, 200 miles, and so forth, and it reached a figure of 18.9 cents for transporting gas from the Panhandle of Texas or from Louisiana or southwestern Kansas to certain destinations in which it was used and to low prices made to industrial users located along the major pipe line, and then it went on to say: "To the extent that these low rates induce consumption of gas for needs that could be met equally well by the more abundant coal, the sales of such gas are for inferior use. Rapid exhaustion of relatively scarce fuel resources by turning them into low-grade use is injurious to the long-term interests of the higher levels of consumption. Hence, directive control to relate consumption to volume of reserves is needed to achieve a balance that unrestricted competitive development fails to accomplish." And in the second column, on page 121 of the same publication, is the following statement under the caption, "Interfuel Policy" and I would like to read this entire state-

ment because it shows some of the uses which they consider to be wastage:

Wherever fuels may be readily substituted, the Government should foster use of fuel available in more abundance for fuel available in less abundance. Water power is available substantially in perpetuity. Coal ranks next in terms of abundance, whereas oil and gas, according to present knowledge, are relatively much less abundant than coal, accordingly, there is a need to foster the use of water power wherever the cost of development is favorable. On the other hand, the life of the oil and gas resources is being threatened by consumption for uses that could be about as well served by coal. The chief direct inroad—

This is the part I refer to especially—

The chief direct inroads into the market for coal are being made by the use of fuel oil for space heating and large stationary installations for power production, and the use of natural gas for heavy-duty industrial purposes. This utilization should be discouraged as much as possible by a program of education, but it appears, also, that additional steps need to be taken. Regulation of pipe lines by the Federal Government with a view to establishing a quantity rate for transportation similar to that charged coal shippers by railroads (a tonnage rate) seems to be desirable. A tax on fuel oil, high enough to discourage further extension in consumption, but at the same time not too high to cause severe hardship to present consumers, would be a step toward rational utilization.

Near the bottom of the second column, on page 228 of that same publication, there appears under the caption, Restriction of Use to Urgent Needs, the following statement:

The conservation of oil and gas resources will be furthered by the allocation of these minerals to the more efficient or superior uses. It is recommended, therefore, that the oil and gas industries be regulated so as to discourage less efficient use.

Here we are faced with a declaration, in effect, that certain present uses constitute waste of oil and gas, and that there should be substituted for such uses lower-grade fuels.

Departing from this statement for a moment, gentlemen, I would like to suggest, if we are going to accept the theory that certain uses, present uses, constitute waste, we are entering upon a pretty big field. It would involve the economical operation of every automobile and every piece of machinery of any kind that uses any product of oil. A man buys an automobile today that is highly efficient, and some men take care of their cars in such a way as to keep them efficient. They get full utilization of the fuel they consume. Another man buys an equally good car, but he doesn't take care of it, and in 2 or 3 years, and as a result of poor care, the use of fuel in his car is probably approximately two-thirds as efficient as the use of fuel in the other man's car. Now, you can see the difficulty of attempting to take care of waste by use. I have no doubt, if you were to go into that subject, you would find that by far the greatest waste that is occurring is in use.

The publication discloses that the authors of Energy Resources and National Policy believe there should be governmental control of all the natural sources of energy, which would permit allocating to each source such share of the total fuel and power requirements of the country as in the wisdom of those in charge might seem proper or desirable. That the policy relating to petroleum is not disassociated from policies relating to coal and water power in the minds of those responsible for Energy Resources and National Policy, and

that they believe the Federal Government should exercise coordinated control over all those resources, and that such control should restrict or eliminate what is termed "inferior" use of oil and natural gas, substituting coal therefor, seems definitely established by the following statements appearing in that publication at the pages shown.

I have quite a few quotations—well, not so many, either, but about four, and there are about three of those that I think it is necessary to read:

In view of the production conditions in the oil and gas industry, it appears that the maximum of comprehensive social benefit from these resources requires a far-reaching authority from control of production to control of competitive energy. Consequently, it is proposed that such a regulatory commission be related to similar boards or commissions regulating the production, distribution, and use of coal, water power, and electric power. An energy-resources division might well be established in some Federal department, perhaps in a new Department of Conservation, or of Minerals.

There is another quotation from a speech made by Secretary Ickes before a meeting of the National Coal Association which I am not going to read, but it confirms what I have just read.

Gentlemen of the committee, while I believe the bill is impotent to induce any conservation additional to that which the industry would otherwise accomplish, and it is officially denied that it is a stabilization matter, I do believe that it could be used effectively to limit production of oil and natural gas—not by a plan of consistent application of engineering principles but by more or less arbitrary action, and I am fearful that restrictions on the production of oil and natural gas to the extent that they would be insufficient to supply all needs now supplied, including the so-called "inferior uses," or to supply any increase in such needs or uses, are possible of realization in the administration of H. R. 7372. I am convinced that the arbitrary powers conferred by the bill would permit that. Perhaps it in turn would mean the substitution of coal advocated in Energy Resources and National Policy. This would be a long step in the direction of such coordinated Federal control of all the principal energy resources as is visioned by the authors of that publication. I am opposed to the bill and to any bill which might possibly permit of such a result, and I am confident that such also is the position of the industry. It would, therefore, seem to me that if Congress should consider H. R. 7372 or any similar bill, it might be considering but one part of a general plan of control of all the natural energy resources, and that if it is going to consider such a bill possibly it ought at the same time to take up the other objectives of Energy Resources and National Policy and thus avoid doing piecemeal that which it might be unwilling to do if presented as a whole. Regardless of the desirability or undesirability of coordinated Federal control of all energy resources, the ramifications of the subject are so vast, the economic effects involved are so great, and the modification of long-established policy of the Government in its relation to private industry would be so extensive, that they warrant most serious consideration of the direction and ultimate results of legislation of the nature and scope apparently contemplated by Energy Resources and National Policy.

As indicated earlier in my testimony, I feel that such a plan, or this bill alone, is objectionable, and I believe that neither of them

would serve the best interests of the country. I also believe that the enactment of either into law would constitute a step in the direction of destroying our system of private industry. I would like to conclude with the statement that in my opinion the power to control the over-all production of the raw material used in any industry involving the apportioning of the total production among States or producers, includes all the elements necessary to control the industry. Even though such control be exercised indirectly, nevertheless it would constitute a very considerable degree of control of activities other than that of producing, and if such control is accomplished through Federal legislation it would, of course, be exercised by a Federal Administrator having absolute and final authority.

I should like also to say that my objections to this type of legislation, or to any legislation which places the Federal Government in the position to control the oil industry, holds without regard to party or personnel, in power in Washington. I realize, of course, the views of the Secretary of the Interior or the Commissioner might and undoubtedly would have some bearing upon the method of its administration. But my objections are more fundamental, as I see it, than the question of who after he is in power or who is administering it, and I would not want it under any party or any administration.

Mr. COLE. Is that all, Mr. Johnson?

Mr. JOHNSON. That is all I have. Are there any questions?

Mr. COLE. Mr. Wolverton has a question.

Mr. WOLVERTON. Mr. Johnson, you have just stated that in your opinion the enactment of H. R. 7372 would destroy private industry?

Mr. JOHNSON. No, I beg your pardon. I did not mean to say that. I said that I thought it was a step in that direction because in my opinion the enactment of H. R. 7372 would actually constitute control of the industry, not merely of the production but of the industry.

Mr. WOLVERTON. How many more steps would be necessary in your opinion before it would have the effect of destroying private industry?

Mr. JOHNSON. Well—

Mr. WOLVERTON. In other words, I want to find out just how far you think we would have to go to destroy industry if this bill is the first step.

Mr. JOHNSON. Mr. Wolverton, if there should be enacted laws to carry into effect the "Energy Resources and National Policy" I think you would have made a very long step. You of course are much more familiar than I with the Government control over money and credit, and if you add to that control over energy, which affects every wheel that humans turn there would be a considerable degree of control right there, and if it is justified—in my opinion if it is justified to take control of this industry it would likewise be justified to take control of all energy resources, from iron ore down to steel, to your automobile industry, one of the largest industries in the country, to your machine manufacturers, and to every industry, and home practically uses energy—using that as an instance.

Mr. WOLVERTON. Is it your thought this bill would lead inevitably to that result?

Mr. JOHNSON. Not inevitably, but the more steps you take the harder it is to go back.

Mr. WOLVERTON. In the enactment of this bill, the first step, as you have referred to it—

Mr. JOHNSON. I don't think it would be the first step.

Mr. WOLVERTON. Do you find anything in the bill that would destroy private industry?

Mr. JOHNSON. Oh, not on the face of the bill. I am trying to find out how that bill, with its arbitrary powers, might be administered to accomplish the result desired by the men responsible for "Energy resources and national policy." The bill as I have brought out was written by practically the same men, or at least part of the same men, as those who wrote "Energy resources and national policy" who were in the Department of the Interior, those who wrote the bill were in the Department of the Interior, and those who would administer the bill would be in the Department of the Interior.

Mr. WOLVERTON. Is it then—

Mr. JOHNSON. Excuse me. Now, I don't think that when a man has such views, or a group of men have views like that—I think they hold them honestly, as I feel sure their purpose is sincere and they believe it is to the best interests of the Nation, and I only question their judgment, but men who have such objectives, men who have anything to do with the administration of the bill, I think inevitably in view of the arbitrary power involved would accomplish some of those things, if they could.

Mr. WOLVERTON. It seems to me, by way of comment, that your approach to it, in which you are at least willing to assume that there might be sincerity upon the part of the proponents, is a much better approach than we had evidenced before us yesterday when there was criticism expressed of these public officials which would indicate there was no sincerity in public officials.

Mr. JOHNSON. I believe that while the Secretary of the Interior and the Commissioner would have a great deal to do with the administering of the bill, I am pretty well persuaded that men who have been in that Department through several administrations—we sometimes refer to them as bureaucrats—would dominate the exercise of that administration.

Mr. WOLVERTON. It may be that you would not be so fearful of another administration.

Mr. JOHNSON. No; I would be just as fearful of the Republicans. [Applause.]

Mr. WOLVERTON. The applause that also greeted my colleague's remarks a little while ago might indicate that there is a unanimity along that line.

Mr. JOHNSON. No; there is no unanimity among oil men.

Mr. WOLVERTON. Is it your opinion that there could be an administration of this act that would lead to the destruction of private industry?

Mr. JOHNSON. Yes, sir; that is, it would lead to eliminating the initiative of and the progress made by the very highly competent men in the industry, who would be deprived of the power of exercising that initiative and that leads to softness. The railroad situation is as good an illustration of what I refer to as I know of.

Mr. WOLVERTON. Well, I don't know just what you mean by the railroad situation when you make that remark and I don't want to go into that with you.

Mr. JOHNSON. No; I don't want to, either.

Mr. WOLVERTON. In an endeavor to meet that situation, it might be appropriate for me to say that the Senate and the House have recently passed bills which seem to have met with general approval from the general transportation standpoint. Several members of this subcommittee are on the conference committee that will consider that legislation between the Senate and the House, as soon as we return. That will be time enough to assume that problem. I don't want to assume it tonight.

Mr. JOHNSON. I think it is a real important problem.

Mr. WOLVERTON. The point I am trying to get some light upon is this: You have referred to this act as being a step in the direction of destroying private industry. What I am trying to find out from you, in expressing that opinion, is it based on the administration that would be possible under this act or do you mean that by the enactment of this legislation it would lead possibly to the enactment of further legislation?

Mr. JOHNSON. Well——

Mr. WOLVERTON. Do I make it plain? Is this bill so broad in its terms, in your opinion, that without any additional legislation this particular bill could be so administered that it would have the effect of destroying private industry?

Mr. JOHNSON. I will answer it this way, Mr. Wolverton: It is my opinion that the act could be administered in such a way as to control the oil industry, and in controlling the oil industry you would destroy to a considerable extent the initiative of the industry. It seems to me that would be a very bad thing for the Government itself and when you pass one such bill you just weaken the resistance to passing another bill.

Mr. WOLVERTON. I am trying to find out: Are the powers that are granted or created under the terms of this bill sufficient, in your opinion, if administered in the way that you are fearful of, to result in the destruction of private industry or do you merely think that this is a step that might result in the enactment of additional legislation that eventually would have the effect of destroying private industry?

Mr. JOHNSON. Yes, sir; that is my opinion.

Mr. WOLVERTON. Then your objection to this bill is not that the authority or powers granted under this bill, no matter how administered, would in itself destroy private industry?

Mr. JOHNSON. Well, it might to some extent. I think it would control or could control the oil industry and I do not feel that an industry which is controlled and controlled arbitrarily is a very strong industry.

Mr. WOLVERTON. I think the question that your remarks raise is important enough for me to inquire, as I am endeavoring to do, to get just how far you think this bill in itself would bring the undesirable result of destroying private industry.

Mr. JOHNSON. Well, if it was administered in the way I have stated I feared was possible, not charging any individual or any group of men with wanting to destroy industry, you would then have, if they succeeded in getting like control over the water-power industry, which I believe now they have considerable authority over, they would then have additional coordinated Government control over all energy.

Mr. WOLVERTON. If you will permit, for the purpose of the question, my assuming that you were appointed to the position that would direct the policies to be pursued under the terms of this bill, could you so administer this bill with the powers that it grants, that it would not destroy private industry and still be conscious of having done your duty?

Mr. JOHNSON. I think the men who would do it would probably think they were doing their duty. I don't think that I could do any better than somebody else. I think that human nature——

Mr. WOLVERTON. You did not get the point, I think. Suppose the powers that are granted under this bill, could you, as the director provided for under the provisions of this bill, administer this bill without destroying private industry?

Mr. JOHNSON. I do not know if I could or could not. It is possible I might be able to do that; but I would not be able to accomplish the purposes of this bill. I think it is impractical to accomplish them by Federal control. It is too remote; it is too cumbersome and requires far too many high-grade technical men. You could not take young fellows out of college and send them out into the oil fields, and have them say what should be done with the well or the property or the field, because they would merely be experimenting with the property.

Mr. WOLVERTON. I would not assume that if you were the director you would employ that kind of a young man.

Mr. JOHNSON. I would have to take what I could get, Mr. Wolverton. And I do not believe there are enough of them outside of the industry; I do not believe there are enough high-class men in the United States to do that sort of a job.

Mr. WOLVERTON. Well, my experience with public officials is this: While it is generally true that private industry, having the ability or willingness to give higher remuneration than the Government sees fit to pay, thereby keeps the services of some of the best men in the particular line in which they are engaged, yet it has been my experience with public officials in many instances that they have been men of outstanding ability. I have often wondered why they were willing to give their services to the Government with the limited remuneration that is provided for them. The men to whom I refer are not political appointees. Whatever may have been their political status originally, they have ceased to be over the years that have elapsed, because of their ability to perform the particular job which they have been given to administer, and they have rare ability in many instances. I have inquired of some. I have known many instances where a desire for service in a particular line has been given and rendered, where some of them have given up a very remunerative practice as chemists, and so forth, and have gone into the Government service to do, as they felt, some public service. I think that you are that type of man, and if you were the director of a department that would assume that obligation, you would desire to fulfill the intent of the bill, and at the same time would not destroy the industry. But you seem to be fearful about any kind of Government control or supervision.

A few years ago our committee was called upon to propose legislation to control the stock exchanges of the country. The interested parties expressed similar fear to that you have shown tonight. They said it was the first step and it was going to destroy them and tie

up business throughout the Nation and all that sort of thing. The Committee, after giving it careful and deliberate consideration, reported the legislation to Congress and it was enacted by Congress, and, now even those who had the best interest of the stock exchange at heart acknowledge that it was a good thing for the stock exchange and a good thing for people in general.

That is the intent of this committee with reference to oil legislation, namely, to help, not hurt. Since this is the closing session, I think I may be permitted to go one step further. It may seem that I have asked a great many questions, but, my questions indicate that I had no desire to get anything other than the true facts and the basic facts. I do not assume that a witness comes before us to state an untruth to this committee, but naturally any witness gives the statement or opinion from their own standpoint. All we ask of any witness, no matter who the witness is, or what interest it is that he represents, all we seek by questions is to find out all we can with respect to the subject from him, especially when he professes to be in a position to know.

Now, when Secretary Ickes came before us, I think the numerous questions that I asked and the variety of questions that I asked, seeking to know what was intended under this bill, would have satisfied anyone having the opinions that I have heard expressed here today. Thus, the only thought of this committee is to get all available information and then study it as a whole, and then do the thing that will be helpful and not harmful.

May I ask one question in conclusion?

Mr. JOHNSON. Yes.

Mr. WOLVERTON. Would the enactment of a statute of the State of California similar in character to that which has been enacted in Texas, in Oklahoma, or the other oil-producing States—choose which one you will—would that result in the destruction of private industry in California with particular reference to the oil industry?

Mr. JOHNSON. Well, I do not think so, Mr. Wolverton.

Mr. WOLVERTON. I do not think so, either. Now, the reason that I asked that question is this: Either Federal or State legislation is possible. I think that those present will recognize that in the States that I have mentioned, that the government has done nothing to interfere with them. We have passed the Connally Act to sustain the States in the endeavor they have been making to conserve oil. I confess, however, when I leave here, I will go away confused as to why laws that work so well in other States, and, seem to answer their problems, should be so seriously objected to in California.

Mr. JOHNSON. I differentiate in the control of an industry like the oil industry between the State and Federal governments. We are close to the State government, and I think it would be easier to correct that condition within the State where we know and are known by the State officials, and where all the people within the State have much the same interests than it would be to correct the same sort of a situation with respect to a Federal Act which went a little bit sour in Washington.

Mr. WOLVERTON. Bear in mind, Mr. Johnson, that the activity of Government officials in this respect, that is for control legislation, originated with the industry itself when it came to Congress in the original instance with the Thomas-Disney bill and requested the pass-

age of that act. It was sought by the oil industry, or the oil States, and it was because of a desire of the industry to stabilize itself that it asked for that legislation. For some reason the industry became a bit fearful after they asked for it, and then they didn't want it a few months later. It finally resulted, however, in the passage of the State Acts and the State Compact Act in place of it. Congress permitted the compact to be entered into. The States could not have entered into it without the consent of Congress. This all indicates Congress was endeavoring to help and not hurt or harm or destroy private industry in any of these States. As an instance, look at Texas and Oklahoma and all those other States, they have gone right on in their business just the same as you folks have here, and as far as this committee has been able to ascertain there has been no serious objection raised to anything that has yet been done.

Mr. JOHNSON. Mr. Wolverton, I am very sure from my talks with oil men not only in California but in Texas and Oklahoma and other States, it can truthfully be said the industry appreciates Congress having passed the Connolly Act and the Interstate Compact Act. I would also state that I do not think that the industry, or probably any industry is afraid of Congress. That is evidenced by the manner in which you gentlemen are approaching this subject, but when Congress passes the act and turns it over to the administration of a department of individuals it could develop into a situation quite different.

Mr. WOLVERTON. Congress isn't doing anything with reference to State control acts.

Mr. JOHNSON. I agree with you on that.

I would like further to state, Mr. Wolverton, that I am sure that all the gentlemen, oil men who have attended these hearings, are very pleased with the fairness of this committee and that they have had no other thought than that the committee was trying to get the facts upon which it could base its recommendations, and we very much appreciate having such a committee as this upon which there are some men who have been studying this subject since 1934, I believe, and therefore know a great deal about it.

We furthermore appreciate very greatly you gentlemen coming all the way from Washington to Los Angeles to permit the producers here to be heard here. Some of them could not have gone to Washington. We know it was hard for you to leave the Capital at this time and we know your time is very, very limited, and therefore we appreciate that more than we may have under ordinary circumstances that you gave us this opportunity, and I want to thank you on behalf of the producers, members of the Oil Producers Agency, and I am sure that in doing that I am expressing the sentiments of all oil producers in the State of California.

Mr. COLE. Thank you very much, Mr. Johnson. [Applause.]

Mr. COLE. Mr. Johnson, the committee appreciates very much the statements which you have just made. May I ask what was your attitude recently with reference to the Atkinson bill?

Mr. JOHNSON. I took no part either way on that, Mr. Chairman. Of course, I voted.

Mr. COLE. I beg your pardon?

Mr. JOHNSON. Of course, I voted. But I took no part in the fight.

Mr. COLE. Well, are you willing to tell the committee how individually you felt about it?

Mr. JOHNSON. Yes, sir. I do not and will not claim the protection of the Australian ballot system in this State.

Mr. COLE. I am more interested in your attitude toward the State legislation.

Mr. JOHNSON. I voted against the Atkinson bill. And the reason that I did so, I thought probably was well explained to you when Mr. Olson explained what that bill in his opinion would have done and what he wanted to accomplish. He had given out an interview in which he stated he wanted the bill, not merely for conservation, but he wanted low prices for the consumers. And at that time we had and we have had for a long time very low prices.

Mr. COLE. Were you in agreement with the objectives of the bill?

Mr. JOHNSON. Yes, sir; insofar as conservation is concerned, there was another bill there that with a few small amendments I would have been willing to support, and I would again, if necessary. It seems to me that it was all right with some amendments. I do not profess to be really familiar with existing California acts, but it seems to me that they are all right, possibly with some amendments, but it seems to me that the act which we now have could be administered in such a way as to accomplish conservation. Whether it would accomplish restriction of production is not the point that I am making.

Mr. COLE. You supported before the legislature—what was it, the Wagy bill? I assume by so doing you felt that the State of California needed such legislation as is embodied in the bill to which you referred, the Wagy bill.

Mr. JOHNSON. Mr. Chairman, I do not feel that the State needs any bill at this time. I feel there is considerable law on the subject which might help and whether it is being enforced or not. I don't think that as things have been going on in California recently we need any law more than we have and it is doubtful in my mind if from what I have heard other gentlemen, some lawyers, say, if we need any more law than we now have except to meet an emergency and if I were going to support a law in the State of California today it would be wholly upon that basis, not because I feel that we need it at this time.

Mr. COLE. You heard, I think it was Mr. Garrison, testify today with reference to the Montebello field?

Mr. JOHNSON. Yes, sir.

Mr. COLE. That in the application of H. R. 7372 to that field, there would be nothing for the Federal Government to do, assuming that this bill should become law, because everything covered in the bill is now in effect in Montebello field.

Mr. JOHNSON. Well, I cannot state that of my own knowledge, but as I understand the situation, they are producing those wells now approximately on an optimum oil-gas ratio. They are producing less than the umpire allotted them.

Mr. COLE. Yes; but you were here when Mr. Garrison testified?

Mr. JOHNSON. Yes, sir; I was.

Mr. COLE. And I restated in substance what he said correctly; did I not?

Mr. JOHNSON. Yes; you have.

Mr. COLE. Do you consider the Montebello field pretty efficiently operated?

Mr. JOHNSON. Well, I am basing it entirely on information that I hear; I have no interest in that field and I therefore do not know personally.

Mr. COLE. Mr. Garrison is one of your association; is he not?

Mr. JOHNSON. Yes; he belongs to the association.

Mr. COLE. Yes.

Mr. JOHNSON. That is correct; but I was going to say that the objections which I have to the bill you see would still hold whether it affected the production of the Montebello field, provided the proper engineering methods were used or not. We have no certainty, if the bill was in effect, that the definition of the commissioner would be such that he would follow an optimum gas ratio. We don't know what construction he would place upon information gained by taking bottom hole pressure readings or things of that sort.

Mr. COLE. I understand you are a member of the Independent Petroleum Association; are you not?

Mr. JOHNSON. Do you mean of America?

Mr. COLE. Yes.

Mr. JOHNSON. Yes, sir; I am.

Mr. COLE. And, like that association, you are opposed to imports of petroleum; are you not?

Mr. JOHNSON. Yes, sir; I am. I agree with the views of the association which you have seen in the resolution which was passed by the convention last October—I agree with those.

Mr. COLE. With no limit upon export?

Mr. JOHNSON. No; I would not say that.

Mr. COLE. Do you think there should be a limit upon export?

Mr. JOHNSON. Did I understand you to say no limit on export?

Mr. COLE. Yes; do you think there should be a limit placed on export?

Mr. JOHNSON. If it was to prevent imports, I think that might be justified in making some limitation on exports.

Mr. COLE. You do advocate a very definite limitation of imports?

Mr. JOHNSON. Yes; I advocate a very definite limitation of imports.

Mr. COLE. And if we do that, you also think there should be a limit on exports at the same time?

Mr. JOHNSON. Well, I have not thought about that.

Mr. COLE. Didn't you just say that a moment ago?

Mr. JOHNSON. No; I said I would be inclined to limit imports and particularly imports which were net, that is, if they import and then process that oil and export the product, I cannot see any reasonable objection to that because it gives employment to American workmen and to American industry.

Mr. COLE. Just what limitation would you place on imports?

Mr. JOHNSON. Oh, I have not given sufficient consideration to that, Mr. Chairman.

Mr. COLE. But you think there should be some?

Mr. JOHNSON. Because that is entirely out of the realm of the activity of the independents. In California, at least, practically no independents have access to deep-water terminals.

Mr. COLE. But you have expressed an opinion, Mr. Johnson, as to a limitation upon imports and I am wondering if you are not equally qualified to give us your views as to your attitude toward exports, I think you are qualified as much in one case as the other and I further think that you are qualified in both cases, that is the way you impress me.

Mr. JOHNSON. Well, in California we have a lot of heavy oil and as you know the oils imported from Venezuela are largely heavy oils and I don't know what the situation is now, but asphalt was being used on roads built in this country wholly or partly with Government money and they used that imported asphalt, whereas we had lots of it in storage here and have fields that are almost pure asphalt and still we have no market, so it is largely on that basis in protection of our own industry, the home market for the home producer. But as being qualified to say what the Government should do with respect to export, I don't feel that I am qualified to answer that question.

Mr. COLE. Is it correct that the President could permit Mexican oil under existing laws to come in in particularly heavy quantities?

Mr. JOHNSON. Well, as I understand it, if Mexico—the treaty with Mexico is on the favored-nation basis, and that Mexico or any other country which has the favored-nation clause in their treaties, they can bring in the oil; yes.

Mr. COLE. And I have an idea that Mexico would like very much to do that, too: don't you?

Mr. JOHNSON. Yes: they would like to have a market for their oil.

Mr. COLE. To whom do you attribute principally today the reason for it not being done?

Mr. JOHNSON. I am not informed as to that. I think it is due in part to some resentment over the expropriation of American-owned properties in Mexico.

Mr. COLE. In this country it is in the hands of the President, is it not?

Mr. JOHNSON. Well, the State Department; I suppose it would be the President; yes. Certainly the administration.

Mr. COLE. But so far as California is concerned, if that were done it would be hard to estimate the seriousness of the situation here?

Mr. JOHNSON. Yes.

Mr. COLE. What is it?

Mr. JOHNSON. Yes, sir; I think it would. The oil could be imported much more cheaply.

Mr. COLE. To that extent there is not much disagreement here with what President Roosevelt is doing?

Mr. JOHNSON. Not on my account, there is not.

Mr. COLE. Now, I just want to press this question a little further. I think I understand your position on imports and your reasons for asking that limitations be imposed. State again, if you will, briefly just your attitude toward exports, as to what limitations, if any, should be placed upon exports of petroleum from this country.

Mr. JOHNSON. Well, Mr. Chairman, the exporting of oil is done I think almost wholly by the large companies and therefore I have had nothing to do with that and I have not given the subject study and I

am not prepared to give a considered answer to that question. I would like to answer it if I could, but I cannot.

Mr. COLE. Well, I think if I understood your testimony a few moments ago I thought you said there should be a limit on exports at the present; as far as California is concerned there is no limitation upon the export of petroleum and you don't want that disturbed?

Mr. JOHNSON. Well, there is quite a definite limitation on exports from California, Mr. Chairman, natural limitations.

Mr. COLE. I mean aside from that, of course.

Mr. JOHNSON. Yes. California is an isolated area. For instance, on the east the Rocky Mountains separate us from the markets—

Mr. COLE. That is not what I have in mind.

Mr. JOHNSON. From the Mid-Continent, and that perhaps is one reason why those States down there need regulation by the States more than we do.

Mr. COLE. I appreciate that, Mr. Johnson. What I have in mind is this: Just as you have increased approximately 50 percent in the last few weeks, your exports of oil, do you want to continue that policy so far as California is concerned, without any restriction?

Mr. JOHNSON. The countries that are being served by California, the foreign countries, have been served for many, many years, I understand 40 or 50 years, and it would upset temporarily the economy of the oil business in California if that were discontinued.

Mr. COLE. Of course the State of California, through its laws, cannot meet that situation, but you want Congress, the Federal Government, to restrict the importation of petroleum here?

Mr. JOHNSON. I might add that there is very little, if any oil, imported into the State of California.

Mr. COLE. Yes. Thank you, Mr. Johnson.

Mr. JOHNSON. Thank you.

STATEMENT OF C. A. JOHNSON, REPRESENTING OIL PRODUCERS' AGENCY OF CALIFORNIA IN OPPOSITION TO H. R. 7372, MADE IN COMMITTEE HEARING HELD IN LOS ANGELES, JANUARY 18, 1940

My name is C. A. Johnson. I am appearing for Oil Producers' Agency of California, of which I am a vice president. I have managed two small oil-producing companies for the past 17 to 19 years. All members of the agency are independent producers, with the exception of a very few royalty owners.

Gentlemen of the committee, I greatly appreciate the opportunity of appearing before you, which I do as a layman of the oil industry, i. e., I am neither a technical man, a lawyer, nor an economist, and if I mention matters which verge on questions pertaining to either of those professions I shall merely be stating my conclusions as a layman not qualified to discuss them as a member of the appropriate profession would be able to do.

I am presenting my testimony in three parts, i. e., I. Discussion of the bill, II. Application of the bill, and III. Some attainments possible under the bill.

PART I. DISCUSSION OF THE BILL

As a result of examining H. R. 7372 I have reached certain conclusions in regard to it, and I am convinced that its enactment would not "further the conservation of petroleum by the elimination of wasteful practices and methods" as contemplated in "Findings and declaration of policy" of the bill. By that I mean to say that I believe the progress being made by the industry itself would not be accelerated by Federal Government control. On the contrary, it is possible, and I think it likely, that such progress would be retarded. I do not see how anyone at all familiar with oil production who attempts to visualize an effort to make practical application of the provisions of the bill can reach any other conclusion,

and many experienced petroleum engineers, as well as practical men, with whom I have discussed the subject, agree with this view. The powers with which the Commissioner would be clothed by the terms of the bill are, to some extent at least, of an arbitrary nature. I presume this was deemed necessary to the purpose of the bill. At any rate it would be unwise to assume that the power might not at times be arbitrarily exercised. For these reasons I feel deeply concerned with respect to results which might follow enactment of the bill, and this I believe is true of the industry as a whole.

There are several angles to the impracticability of administering the provisions of the bill so as to attain its declared objectives by the application of accepted engineering methods, two of which I desire to emphasize in support of my testimony. I refer to the fact that the bill will not displace the law of capture, and that it does not permit the Commissioner to enforce unit control of operations, both of which conditions Government witnesses appearing for this bill have testified are essential to a realization of the avowed purpose of the bill, i. e., conservation. In support of that statement I will first quote from the record testimony of Mr. Ralph J. Watkins:

Page 467: "Scientific unit control is the technical ideal, making for both minimum costs and maximum recovery, but this technical ideal has been unobtainable within the legal framework built on the rule of capture."

Page 468: "The basic conclusion of the National Resources Committee in the energy resources study was that conservation in this industry means scientific management of oil and gas pools. * * * Although the right of capture has been modified somewhat, it needs, in the words of the National Resources Committee, to be completely displaced by a thoroughgoing law of ownership in place, which would allot to each producer that proportion of the oil and gas in the common reservoir which underlies the land he owns or controls. * * *

And testimony of Mr. Ben E. Lindsly, recorded on page 485: "I do not see how the bill can accomplish the things that it proposes to accomplish without some kind of unit control of oil fields. It is just impossible; it cannot be done."

As well as testimony of Mr. Glenn E. McLaughlin, page 505: "* * * One of the major causes of waste of oil and gas relates to the right of the individual landowner, with few exceptions, to "capture" all of the oil and gas which is produced from wells on his property. * * * The alternate to competitive production is some kind of a system of scientific or unit-field operation in which the spacing of wells and the rate of operation are based upon efforts to recover a maximum proportion of the underground resources and to make most effective use of the lifting power of natural gas. * * *

Mr. Watkins was chairman of the Energy Resources Committee and director of its research staff. On page 469 of the record he summed up the import of the findings of the National Resources Committee study in paragraphs 1 to 6, inclusive. In this summary the rule of capture is criticized, and, inferentially, unit control is recommended. Also, in Energy Resources and National Policy, the report of the Energy Resources Committee to the National Resources Committee, of which latter committee Hon. Harold L. Ickes, Secretary of the Interior, was chairman, it is made perfectly clear that the Committee strongly recommends unitization as a means of preventing waste. Nearly 9 pages of that report (pp. 216 to 225) are wholly devoted to the subject, and frequent and extensive references to it are made elsewhere in the report. On page 24, second column, of Energy Resources and National Policy, is identically the same language as used by Mr. Watkins in the latter part of his testimony which I have quoted as appearing on page 468 of the record.

The quotations I have read are conclusive on the points of displacement of the law of capture and compulsory unitization being essential to the purposes of the bill, but it is quite obvious that the provisions of the bill could not accomplish unitization with respect to existing fields, and on that point I should like to quote from the record as follows:

Page 539: "Mr. WOLVERTON. From the testimony that came before us day before yesterday, it would seem that there were very few pools that were now being operated on the unit system. I think if I recollect correctly, it was 185 pools of 3,000 existing pools. Thus, while there might be agreement as to the advisability of having such a system, yet, (for) some reason or other it seems to have been difficult to place in operation.

"Secretary ICKES. Difficult to make it retroactive.

"Mr. WOLVERTON. I beg your pardon.

"Secretary ICKES. Difficult to make it retroactive."

Not only is unitization of old fields not authorized under the terms of the bill but it is equally clear that unitization could not straightforwardly be required with respect to new fields under the terms of this bill or any Federal bill, and that unitization could not be accomplished at all except on Federal lands. I shall again quote from the record:

Page 415: "Mr. WOLVERTON. For that reason, I am inquiring whether the provisions of the bill would enlarge the jurisdiction of the Department with respect to it (unitization).

"Mr. SOYSTER. In my opinion the bill does not make mandatory unit or cooperative development. It simply requires practices which of necessity, in some cases, may result in unit or cooperative development and operation because those engineering factors or principles which the bill defines as the basis of ascertaining waste cannot be applied effectively if the pool or field is not developed and operated under a cooperative or unit plan. To my knowledge there is nothing in this bill that enforces or requires the holders of patented lands to join a unit or cooperative plan."

On page 474 of the record is a question asked by Congressman Wolverton and answered by Ralph J. Watkins, as follows:

"Mr. WOLVERTON. Doctor, you have made reference many times during your statement to the importance of having a unit system of recovery, as a means of precluding waste. Does this bill make possible that program?

Mr. WATKINS. I just indicated a moment ago that I am inclined to question whether it goes far enough in that respect, insofar as the recommendations of the National Resources Committee are concerned."

I also quote from the testimony of Hon. Harold L. Ickes:

Page 540: "Mr. WOLVERTON. I did not understand that that law (the law of 1935) went to the extent of giving authority to require such an agreement on private land.

"Secretary ICKES. Public lands.

"Mr. WOLVERTON. That is quite different.

"Secretary ICKES. There is no law applying to private lands."

Page 541: "Mr. WOLVERTON. But you have already said the bill does not give additional power with reference to unit operations.

"Secretary ICKES. No; it does not.

"Mr. WOLVERTON. The point that I have in mind is this, that if the Federal Government goes into a State and exercises jurisdiction over an individual oil owner, it seems to me it would not be a much further step to say that it has that same power to go in and exercise jurisdiction over several owners at the same time.

"Secretary ICKES. I think that it would be going too far to compel contractual relations among them, and I doubt whether the courts would sustain such a power."

It appears also that there is no intention under the provisions of the bill to take jurisdiction over unitization. This view is confirmed by testimony of Secretary Ickes, which I quote from page 540 of the record:

"Mr. WOLVERTON. Under the provisions of this bill the Secretary makes an investigation and then announces his findings of wasteful methods that are existing. Could he, under the provisions of this bill, find the facts to be that wasteful methods were in effect because of the failure to adopt the unit system of operation?

"Secretary ICKES. I do not believe so.

"Mr. WOLVERTON. Then I assume there is no intention under the provisions of this bill to take jurisdiction in matters of that kind?

"Secretary ICKES. That is correct."

There are then no State laws, and legislation by States is necessary if unit operations are to be compelled by law. This is evidenced by further testimony of Secretary Ickes, which I quote from the record:

Page 539: "Mr. WOLVERTON. The very fact that the system is so generally approved, and yet is not made operative, indicates to me that there must be some basic difficulty. I have been endeavoring to find out what the real difficulty is. There are no State laws as I understand that now compel unit operations. Do you know of any?

"Secretary ICKES. No; we have none."

Furthermore, in Energy Resources and National Policy there appears at the top of the first column on page 217, the following statement:

"Effective unit operation requires the compulsory pooling of both operator and lease interests. Such an arrangement undoubtedly would require State

legislation providing for unit agreements and new lease forms to replace present lease obligations. * * *

And in the second column on page 235 of the same publication, under caption Legal Basis for State Regulation, is the following statement:

"State regulation of the oil and gas industry is based upon political power and its use to provide for the general welfare. It has been suggested that this power is already sufficient for the initiation of a system of unit operation, although a further change in the law of ownership of mineral rights would probably be required. * * *

Nothing could be plainer than the disbelief of the Energy Resources Committee in the authority of the Federal Government to compel unit operations, but it did set forth its reasons for believing the States can do it. If only the States may legislate to compel the unitization which it has been testified is so essential to the successful administration of the bill, it seems reasonable to believe that the States would also insist on control of the fields in the event they required their unitization.

On the ground that the bill does not authorize the compulsory unitization deemed by its proponents to be so essential, if on no other, the bill must be rejected insofar as its effectiveness as purely a waste prevention measure is concerned, in view of which it seems to me desirable to examine its possibilities in other directions, and inasmuch as either the prevention of avoidable waste or stabilization, or both, seem generally to be regarded as the objective of any plan which may curtail the production of oil, it appears to be in order to briefly consider the bill from the standpoint of stabilization.

There is not found in the language of the bill any reference to supply and demand. It is silent upon the subject of excessive, insufficient, or economic stocks of oil and refined products of oil. Such items as cost, price, profit and loss are not mentioned. Secretary Ickes testified in effect that the bill places no limitation on production except as it may result from reducing physical waste, as follows:

Page 524 of the record: "In contrast with the several purposes of State laws, the bill H. R. 7372 is designed solely to conserve petroleum and to provide for cooperation with the States in preventing its waste. It does not authorize the Federal Government to limit, on the basis of demand, the oil production of the United States, or of any State, field, or well. * * *

Also Page 534: "Secretary ICKES (interposing). As to the difference. In any plan there ought to be an apportionment, a proper apportionment; not a limitation. They are quite distinct. We do not propose to limit except in places like Illinois, for instance, where it will appear that they are producing more than they ought to be producing in comparison with other States which are limiting themselves as between themselves."

Page 538: "Secretary ICKES. No. As I said in my statement, it would still be up to the States to determine what amount of oil could be produced, provided that there was no avoidable waste. There is the only limitation."

Other Government witnesses have stated in effect that the bill does not apply to economic waste, prices, or marketing. I quote from the testimony of Mr. David Hudson:

Page 71: "Mr. WOLVERTON. Does this bill directly or indirectly seek to control marketing?

"Mr. HUDSON. No, sir; it does not."

Page 79: "Mr. HUDSON. The bill does not lay down any standard nor make any provision concerning economic waste, or on the question of prices or marketing in any of its phases. It is limited to the physical aspects of the production in the field."

Page 80: "Mr. WOLVERTON (continuing). So that the purpose of this bill is only to regulate production and has nothing to do with price control.

"Mr. HUDSON. That is correct. There is no function as to that."

And from the testimony of Mr. Alfred G. White:

Page 163: "Mr. WOLVERTON. That is just what I wanted to bring out. Does this bill deal with physical waste or economic waste?

"Mr. WHITE. I think the bill answers that question itself, if I recollect, in its language.

"Mr. WOLVERTON. Physical waste?

"Mr. WHITE. It has no relation to balancing market demand and supply, so far as I can find out."

And of Secretary Ickes:

Page 535: "I do not think there ought to be any power to fix prices under this bill or do anything that would have that effect."

Therefore, although some of the Government witnesses have referred to the effect of stabilization on conservation, and vice versa, and it has perhaps been difficult for them to fully separate the two in their consideration of the subject, in view of the bill being silent on stabilization and of the positive testimony of its proponents that no phase of stabilization is contemplated by the bill, I am here assuming that it has no such purpose.

PART II. APPLICATION OF THE BILL

Inasmuch as the bill in its practical application would not effectuate the prevention of avoidable waste, and is not drawn for the purpose of stabilization, it should be determined if the provisions of the bill are susceptible of being administered so as to attain any other possible objectives of which we have knowledge, and if so what they are.

Section 11 authorizes the Commissioner to cooperate with the States, but from a reading of the bill it is clear, and testimony is to the effect, that the authority of the Commissioner would be superior to that of the States, and that it would prevail, and, therefore, from the point of view of the industry, and I presume also of the States, such cooperation cannot seriously be accepted as a major objective of the bill.

However, in my opinion, it would be a serious mistake to conclude that nothing at all could be done by the Commissioner under the provisions of the bill. The arbitrary power it confers upon him is considerable, in view of which it is my further opinion that there are ends which could be realized in the administration of the bill, some of which would be very objectionable to the industry and perhaps to a vast majority of the people of the country. It must be anticipated that the Commissioner would exercise in some way the arbitrary powers conferred upon him by the bill. He is specifically authorized to define technical terms used in the bill. His definitions would in turn determine in some degree the existence or nonexistence of waste. Therefore, the Commissioner would not be bound by the accepted definitions of technical terms as they are understood in the industry. These definitions are the result of long usage by men who have devoted their careers to the industry's technical problems. It follows that the vital standards of conduct in producing oil and natural gas are left to the determination of the Commissioner alone. Such broad powers could be exercised in ways to bring about almost any result that might be desired by the Commissioner as to the quantity of production.

PART III. SOME ATTAINMENTS POSSIBLE UNDER THE BILL

Mr. David Hudson testified that H. R. 7372 was prepared in conference with the technical people of the agencies of the Department, viz, Petroleum Conservation Division, Bureau of Mines, Geological Survey, and he thought the Office of Indian Affairs, and that it was reviewed by Mr. Nathan Margold. All these are in the Department of the Interior. Of the 15 Government witnesses who appeared in support of the bill in the November 1939 hearing, 11 were men of position in the Department of the Interior (if Natural Resources Planning Board was in that Department; otherwise 10) and 6 of the 11 collaborated in the preparation of Report of the Energy Resources Committee to the National Resources Committee of which latter Committee the honorable Harold L. Ickes, Secretary of the Interior, was chairman. This report is printed in Energy Resources and National Policy—a Government publication bearing date of January 1939. Another witness, Mr. Glenn E. McLaughlin, who holds a Government position with Securities and Exchange Commission, was author of part I, section II (which is the part pertaining to the petroleum and natural gas industries) of Energy Resources and National Policy. Examination of that publication and of the testimony of these witnesses discloses a remarkable degree of harmony, which is not astonishing in view of the participation of a number of the gentlemen in the preparation of Energy Resources and National Policy. The circumstances warrant the belief that some of them also collaborated in preparing H. R. 7372. I believe these facts and circumstances reasonably establish a harmony of objectives as between the authors of Energy Resources and National Policy and of this bill and its supporters who have appeared before you, a number of whom, as I have stated, collaborated in the energy resources study and the preparation of the Energy Resources Committee

report, which relates not only to petroleum and natural gas, but also to coal and water power, as the principal sources of fuel and electrical energy, and makes it plain that its authors believe that certain uses now made of oil and natural gas constitute waste, and that such uses should be reserved for what is termed "lower grade" fuels and water power. On page 90 beginning near the bottom of the first column is this statement:

"It has been estimated that the average cost of main-line transportation, including a moderate return on investment, is 3 to 4 cents per 1,000 cubic feet of gas per 100 miles. On this basis, natural gas consumed in Illinois, most of which comes from Louisiana, the Panhandle of Texas, or southwestern Kansas, would require an average outlay for transportation of at least 16 to 24 cents, yet the average price to industrial consumers in 1936 was only 18.4 cents. A similar relationship exists for Indiana and possibly Michigan, focal States in eastern coal competition. Part of the industrial sales of gas are made at extremely low rates to so-called main-line industrial consumers. To the extent that these low rates induce consumption of gas for needs that could be met equally well by the more abundant coal, the sales of such gas are for inferior use. Rapid exhaustion of relatively scarce fuel resources by turning them into low-grade use is injurious to the long-term interests of the higher levels of consumption. Hence, directive control to relate consumption to volume of reserves is needed to achieve a balance that unrestricted competitive development fails to accomplish."

And in the second column on page 121 of the same publication is the following statement under caption Interfuel Policy:

"* * * Wherever fuels may be readily substituted, the Government should foster use of fuel available in more abundance for fuel available in less abundance. Water power is available substantially in perpetuity. Coal ranks next in terms of abundance, whereas oil and gas, according to present knowledge, are relatively much less abundant than coal. Accordingly, there is a need to foster the use of water power wherever the cost of development is favorable. On the other hand, the life of the oil and gas resources is being threatened by consumption for uses that could be about as well served by coal. The chief direct inroads into the market for coal are being made by the use of fuel oil for space heating and large stationary installations for power production, and the use of natural gas for heavy-duty industrial purposes. This utilization should be discouraged as much as possible by a program of education, but it appears, also, that additional steps need to be taken. Regulation of pipe lines by the Federal Government with a view to establishing a quantity rate for transportation similar to that charged coal shippers by railroads (a tonnage rate) seems to be desirable. A tax on fuel oil, high enough to discourage further extension in consumption, but at the same time not too high to cause severe hardship to present consumers, would be a step toward rational utilization."

Page 194, second column: "If all of the crude oil could be used to manufacture the more valuable petroleum products and the users of the less valuable products be shifted to coal, the production of crude oil might be materially restricted and the life of reserves correspondingly increased. This suggestion was made by the Federal Oil Conservation Board in its first report in February 1926. In the main, it was based upon the realization that reserves of natural gas and petroleum are much smaller than those of coal and that the functions of heavy fuel oils may be performed by coal."

Page 195, first column: "The problem of restricting less urgent uses may be stated in terms of the desirability of using coal for the cheaper requirements, and therefore of restricting fuel oil sales."

Near the bottom of the second column on page 228 of that publication there appears under the caption Restriction of Use to Urgent Needs, the following statement: "The conservation of oil and gas resources will be furthered by the allocation of these minerals to the more efficient or superior uses. It is recommended, therefore, that the oil and gas industries be regulated so as to discourage less efficient use."

Here we are faced with a declaration, in effect, that certain present uses constitute waste of oil and gas, and that there should be substituted for such uses lower grade fuels.

The publication discloses that the authors of Energy Resources and National Policy believe there should be governmental control of all the natural sources of energy, which would permit allocating to each source such share of the total fuel and power requirements of the country as in the wisdom of those in charge

might seem proper or desirable. That the policy relating to petroleum is not disassociated from policies relating to coal and water power in the minds of those responsible for Energy Resources and National Policy, and that they believe the Federal Government should exercise coordinated control over all those resources, and that such control should restrict or eliminate what is termed "inferior" use of oil and natural gas, seems definitely established by the following statements appearing in that publication at the pages shown:

Page 3, in first column: "The obvious fields of remedy with respect to conservation of energy resources seem to lie (1) in promoting greater efficiency in the production of the fuel resources from the standpoint of recovery; (2) in promoting greater economy in the use of fuels; and (3) in placing a larger share of the energy burden on lower grade fuels and water power."

Page 30, in first column: "Bituminous coal, petroleum, natural gas, anthracite coal, and water power—in descending order of relative contribution to the Nation's energy supply—these are the energy foundation stones of our industrial civilization. A policy of any one of these resources is bound to affect its relative position with respect to the others. It is difficult in the long run, therefore, to envisage a national coal policy or a national petroleum policy or a national water-power policy without also in time a national policy directed toward all these energy producers—that is, a national energy resources policy."

Page 231, second column: "In view of the production conditions in the oil and gas industry, it appears that the maximum of comprehensive social benefit from these resources requires a far-reaching authority from control of production to control of competitive energy. Consequently it is proposed that such a regulatory commission be related to similar boards or commissions regulating the production, distribution, and use of coal, water power, and electric power. An energy resources division might well be established in some Federal department, perhaps in a new Department of Conservation or of Minerals."

In corroboration of this policy, Hon. Harold L. Ickes, Secretary of the Department of the Interior, is quoted as having said in an address made by him recently before a meeting of the National Coal Association that:

"Since the problem of the conservation and utilization of all natural resources is a national one, the Federal Government has taken vigorous steps to coordinate the various phases of it. The administration fully recognizes that conservation is not a hodge-podge of independent objectives. For instance, you cannot separate the coal problem from the oil and natural-gas problems. All of the resources of the Nation form one large pattern and must be treated as a whole."

Gentlemen of the committee, while I believe the bill is impotent to induce any conservation additional to that which the industry would otherwise accomplish, and it is officially denied that it is a stabilization matter, I do believe that it could be used effectively to limit production of oil and natural gas—not by a plan of consistent application of engineering principles but by more or less arbitrary action and I am fearful that restrictions on the production of oil and natural gas to the extent that they would be insufficient to supply all needs now supplied, including the so-called "inferior uses," or to supply any increase in such needs or uses, are possible of realization in the administration of H. R. 7372. I am convinced that the arbitrary powers conferred by the bill would permit that. Perhaps it in turn would mean the substitution of coal advocated in "Energy Resources and National Policy. This would be a long step in the direction of such coordinated Federal control of all the principal energy resources as is visioned by the authors of that publication. I am opposed to the bill, and to any bill which might possibly permit of such a result, and I am confident that such also is the position of the industry. It would, therefore, seem to me that if Congress should consider H. R. 7372, or any similar bill, it might be considering but one part of a general plan of control of all the natural energy resources, and that if it is going to consider such a bill, possibly it ought at the same time to take up the other objectives of Energy Resources and National Policy and thus avoid doing piecemeal that which it might be unwilling to do if presented as a whole. Regardless of the desirability or undesirability of coordinated Federal control of all energy resources, the ramifications of the subject are so vast, the economic effects involved are so great, and the modification of long-established policy of the Government in its relation to private industry would be so extensive, that they warrant most serious consideration of the direction and ultimate results of legislation of the nature and scope apparently contemplated by Energy Resources and National Policy. As indicated earlier in my testimony, I feel that such a plan, or this bill alone, is objectionable, and I believe that neither of them would serve the

best interests of the country. I also believe that the enactment of either into law would constitute a step in the direction of destroying our system of private industry.

I would like to conclude with the statement that in my opinion the power to control the overall production of the raw material used in any industry involving the apportioning of the total production among States or producers, includes all the elements necessary to control the industry. Even though such control be exercised indirectly; nevertheless it would constitute a very considerable degree of control of activities other than that of producing, and if such control is accomplished through Federal legislation it would, of course, be exercised by a Federal Administrator having absolute and final authority.

Mr. COLE. Now, I have before me a letter of Mr. Emil Kluth. Is Mr. Kluth in the room?

Mr. KLUTH. Yes.

Mr. COLE. Do you want to file a statement with the committee?

Mr. KLUTH. Yes; I would like to read the statement to the committee.

Mr. COLE. I have not arranged any time to hear you.

Mr. KLUTH. It would only take 5 minutes.

Mr. COLE. How many other gentlemen in the room have statements they want filed with the committee? Is there any other gentleman here? If there are, stand up. Do you want to be heard, sir?

Mr. PORTER. I would like to file a statement, sir.

Mr. COLE. All right. Step up here with it. What is your name?

Mr. PORTER. W. W. Porter.

Mr. COLE. W. W. Porter?

Mr. PORTER. Yes, sir.

Mr. COLE. Where do you live, Mr. Porter?

Mr. PORTER. Los Angeles.

Mr. COLE. What is your business?

Mr. PORTER. A consulting geologist. I have copies here for the members of the committee. [Handing copies to committee.]

Mr. WOLVERTON. May I ask with what phase of the situation your statement deals, Mr. Porter?

Mr. PORTER. It deals with the effect of this bill.

Mr. WOLVERTON. Speak louder.

Mr. PORTER. It deals with the effect of this bill on the exploration and making available future reserves.

Mr. WOLVERTON. Is it for the purpose of raising capital?

Mr. PORTER. Yes, sir.

Mr. WOLVERTON. Do you express an opinion in your statement that the passage of the bill would possibly disable production and raising of capital and therefore future exploration would be less probable?

Mr. PORTER. Yes, sir.

Mr. COLE. Is this a voluntary statement on your part, or is it inspired by any request from an employer?

Mr. PORTER. It is inspired by no request.

Mr. COLE. Very well. You may file it at this time.

STATEMENT OF WILLIAM W. PORTER II

My name is William W. Porter II. I am a resident of Los Angeles, Calif. I have completed undergraduate and graduate work at Harvard University, receiving the degree S. F. and A. M., both in geology. I have been engaged in the oil business as geologist for 13 years, as geologist for major companies, and for the last 8 years as a

consultant. Much of my experience has been in the field of exploration for oil in California, with additional work in Texas, Mexico, Central America, and Canada.

The interference with the recovery of future reserves and failure to accomplish the alleged purpose as a conservation measure merit consideration in respect to their relation to H. R. 7372. In previous mention of oil reserves, the manner through which these reserves shall be made available has been ignored. The only reserve of practical use is the available reserve. Availability results from exploration and discovery efforts, the combined costs of which have amounted to some \$10,000,000,000. The sum spent on oil discovery is not reflected in most considerations of the \$15,000,000,000 industry, yet it is an integral part without which there would be no oil industry.

New oil reserves can be discovered only by drilling of exploratory wells, and these wells will be drilled only if petroleum economics attract the necessary capital.

Disturbance of the economy which makes attractive the flow of capital into the exploration phase of the industry must result in lowering of the discovery rate or its complete cessation. With best available scientific aid, only 1 out of about 28 wildcat wells results in discovery of an oil field. In the all time history of the industry, the discovery proportion is about 1 to 800. The cost of discovering oil reserves to date has been \$10,000,000,000 worth of dry holes. If H. R. 7372 prevents the flow of capital necessary for continued oil finding, and it will be shown why it does, the consequences will be disastrous; and if its practical effect limits exploration efforts to operators of great wealth, it will create monopoly. More than being merely unnecessary, H. R. 7372 is therefore menacingly undesirable.

The bill is not a conservation measure because it reverses the conservation principles established by the Department of the Interior for other vital products, and differs in fundamental principle with the oil conservation methods in practice by warring nations today. True conservation in an emergency is practiced by encouraging discovery and development and limiting use. This was the United States Government policy at the time of the last war. Shortages of chromium and manganese existed. Contrary to H. R. 7372, principles of regimenting the discoverer and producer, the discovery and development of these valuable metals was encouraged and even subsidized by the Federal Government.

There is little that is convincing in the argument that present emergency conditions demand Federal control of the source industries of petroleum, while the finished products are permitted to be dissipated at will for luxury or pleasure once they are delivered into the consumer's automobile.

A few features of the bill itself relative to my thesis follow:

Section 6 (b) (1): For conservation, the Commissioner shall make provision concerning well spacing. Since modern authorities consider the number of wells unrelated to ultimate recovery, this power is not needed.

Section 6 (b) (2-11): The situations are important, but the solutions are honestly controversial and rapidly changing under the impetus of current research, and therefore not amenable to the final

jurisdiction of any one man whose personal opinions shall be final and not subject to review by the courts.

Section 6 (c) 1: Suggests the Department's ignorance of certain type of open flow (hydrostatic, and slow heading), which are not wasteful.

Section 6 (c) 2: Vague, but attempts to use the behavior of one field as a yardstick to prescribe methods in another. Differences between fields of both geological and engineering matters make the operation of this clause highly dangerous.

Section 15 (d): Commissioner's right to petition "any court of appeals in the United States" works obvious hardship.

Prohibition of new evidence, and declaration that Commissioner's findings as to fact shall be conclusive, void operator's right of appeal on the actual grievance.

These points briefly referred to and others have been more fully considered by other witnesses.

The net effect produced by the bill is fear and uncertainty as to the position of one subject to its jurisdiction. This fear and uncertainty is not dispelled by assurance by proponents of the bill that the objections above mentioned are not real; but, on the contrary, apprehension is increased by the reluctance of the proponents to draw a bill that plainly parallels their professed verbal views and provides nothing more.

This situation of fear of abuses and uncertainties as to the full meaning is a situation that will act as an effective bar to the flow of capital into oil exploration. It cannot be honestly denied that this situation will have the practical effect of deterring people from voluntarily placing their money, under the jurisdiction of this bill, in amounts necessary for the drilling of the number of wildcat wells necessary to maintain the national reserve position.

Failure of the bill to provide in any way for the exploration phase of the industry must then result in a sharp decline in the rate of finding more oil, to the great prejudice of national interest.

REFERENCES ON WELL SPACING

Discussion by William W. Porter II and Edgar Kraus. Bulletin, American Association of Petroleum Geologists, December 1939, page 1858

Mr. Porter's fair discussion of the paper The Geologist and the Well-Spacing Problem, emphasizes the inadvisability of establishing well-spacing patterns and programs by law. With this view, no fair-minded engineer or geologist could disagree.

On same page is quoted, R. D. Wycoff, Gulf Research and Development Co., in "Report of Special Study Committee on Well Spacing," Proc. A. P. I. 9th Mid-Year Meeting, vol. 20M (IV), (1939):

* * * the experimental evidence already referred to indicates that the importance of the spacing factor alone upon recovery is relatively insignificant * * *.

Also: Morris Muskat, Gulf Research and Development Co., in "Principles of Well Spacing," American Institute of Mining and Metallurgical Engineers, Technical Publication No. 1086. (In Petroleum Technology, August 1939), page 15:

As a result of the study reported here, it may be concluded that from a strictly physical point of view there is no basis for believing that the absolute ultimate

recovery of oil that can be produced from a uniform and nonlenticular sand through the agency of the dissolved gases will materially depend upon the number of wells used to drain the reservoir.

Mr. COLE. Mr. Kluth told some gentlemen that there would be no further testimony tonight. I would be glad to have your statement filed if you care to.

Mr. KLUTH. I will file it with the committee for their consideration.

Mr. COLE. Very well. It may be filed and made a part of the record.

STATEMENT OF EMIL KLUTH

LOS ANGELES, CALIF., *January 15, 1940.*

HON. WILLIAM P. COLE, JR.,

Chairman of the Cole Committee,

and Members of the Committee.

DEAR SIR: I come before your committee in order to present facts in favor of Federal conservation of oil production based on facts as they exist, as to waste, in the State of California, and also with suggestions especially as to regulations in States that have no oil-control acts.

In this State we operate under voluntary curtailment which, on its face, seems to be successful. For instance, in December 1939, the State's allotment was 598,050 barrels daily, and the production averaged 611,845 barrels daily, or an excess per day of 13,795 barrels, by going into the overages in the particular fields, however, you will find that the above figures do not represent true conditions as to curtailment in the State but rather camouflage the facts as to the tremendous overproduction in some fields by certain companies, resulting in tremendous inequities to other fields and the producers therein.

The allowable production of this State is generally based (by the Central Committee of California Oil Producers) on supply and demand and is tied in somewhat to the figures of the Bureau of Mines, and the allocation of the State's allowable is made to the wells and producers by the Central Committee of California Oil Producers. The present procedure and method of allocation by this committee, composed of elected oil operators in the State, is, in my mind, not only the most perfect but also the most equitable way and evidently is satisfactory to most everyone concerned. It is much superior to methods used in other States where there is considerable dissatisfaction among the operators on account of special allowables granted to certain fields that apparently are able to press for higher allotments.

If the allocations given by the Central Committee would be adhered to by the operators, the State's curtailment could be considered most satisfactory. However, as stated before, though the actual overproduction in this State, as a whole, is only 2.3 percent, the most flagrant conditions exist to the detriment of a large number of the smaller independent producers. I will not take up your committee's valuable time by going into a discussion of the conditions of overproduction and underproduction in every field in this State but would like to call your attention to conditions existing, using only one field in each of the three districts in the State.

In December 1939 the allocation for the Kettleman Hills North Dome Field, in the San Joaquin Valley district, was 34,150 barrels

daily. The actual production was 52,164 barrels daily, or a total overage of 18,014 barrels—a 53 percent excess. I would like to mention that the Kettleman Hills North Dome Field also produces a tremendous amount of casinghead gasoline in addition to the crude oil.

For the same month the allocation for the Ventura Avenue Field, in the coastal area, was 31,015 barrels daily and the production for the month averaged 36,637 barrels daily, or a daily excess of 5,622 barrels.

For the same month the allocation for the Dominguez Field, in the Los Angeles Basin district, was 16,404 barrels daily and the production for the month was 18,731 barrels daily, or a daily excess of 2,327 barrels.

The total daily overage for these three fields alone amounted to 25,963 barrels daily, or a total for the month of December of 804,853 barrels. If you will study the holdings of the operators in the three mentioned fields, you will find that most of them belong to the major oil companies in the State.

Adding the total excess production of fields that overproduced in December 1939 will give you an average daily overproduction of 53,515 barrels, or a total for the month of 1,658,965 barrels.

Other information as to facts on the various fields in California no doubt is available from the oil umpire, and additional facts as to curtailment, presented before the hearings of committees at the California Legislature on the oil-control bill of 1939, undoubtedly are available to your committee.

Now, what is the result of this tremendous overproduction in a relatively few fields? It results in a waste of the first magnitude. In the following I will give you the actual facts of such waste—a waste that I never before have seen during my 28 years around oil fields.

I would like to call your attention to the outstanding conditions existing in the Santa Maria Valley oil fields, in Santa Barbara County, where the operators are penalized on account of overproduction in other fields, and especially on account of the unjust practice by the major purchasing company in that field.

The Santa Maria Valley oil field was discovered in 1934; however, no extensive development took place until the beginning of 1937, when the field was extended 3 miles farther to the west, and later on an additional 3 miles farther west, and over 1 mile to the south. The present productive area is about 8 miles long and over 1½ mile wide, except at the extreme western end, with a proven productive area in excess of 5,000 acres. The average depth of the wells is approximately 5,000 feet and the complete cost per well, including tank facilities, runs possibly up to \$50,000. The initial production of the wells ranges from a few hundred barrels to an excess of 5,000 barrels per well per day. The average gravity of the oil is from 14° to 17°, and it has a comparatively high recovery of gasoline. In topping this crude oil, 16 to 19 percent of motor gasoline can be extracted. In cracking the crude oil, 41 percent of gasoline can be obtained, the residue being fuel oil, and if cracked still further 63 percent of gasoline can be obtained with the residue consisting principally of coke. The only bad feature of this crude is that it contains over 5 percent sulfur, otherwise it would be a more desirable oil than other heavy crudes of the same gravity due to the comparatively high percentage of gasoline recovery.

The average recovery of oil per acre in this field is estimated at 30,000 barrels per acre. One particular 40-acre tract with 4 medium-sized wells already has produced, up to the first of this year, over 700,000 barrels, or 17,500 barrels per acre, and the wells are still able to produce approximately 2,000 barrels per day. This gives the field an ultimate recovery of 150,000,000 barrels. I am relating these facts so your committee will see that this field represents one of the major reserves on the Pacific coast.

This field has only one pipe line, which belongs to the Union Oil Co. This company also sets the posted market prices for this field, which are as follows:

Previous to May 1938:	
14° gravity-----	\$0. 65
15° gravity-----	. 65
16° gravity-----	. 70
May 20, 1938:	
14° gravity-----	. 42
15° gravity-----	. 44
16° gravity-----	. 45
Oct. 15, 1938:	
14° gravity-----	. 65
15° gravity-----	. 68
16° gravity-----	. 70
Sept. 1, 1939:	
14° gravity-----	. 42
15° gravity-----	. 44
16° gravity-----	. 45

Up to the end of June 1938 the Union Oil Co. purchased most of the crude oil from the producers in this field that adhered to the allotments, and other major purchasers ran their purchased crude through the Union Oil Co.'s line to the tidewater. In June 1938, however, the Union Oil Co., with its pipe-line monopoly, refused further acceptance of oil from other producers in the field after having cut the price the month before (on May 20, 1938) from 70 cents to 45 cents per barrel for 16° gravity crude. The Union Oil Co. explained that this was due to too much drilling in the field. A committee was formed, consisting of producers in the field, and meetings were held with the landowners, and it was almost unanimously decided to stop all drilling except offsets to existing wells. Practically all the producers and landowners also were agreeable to curtailing at a figure which resulted in a production of about one-half of that which was allocated to the field by the Central Committee, representing a fair share of the field's production out of the State's allotment.

The George F. Getty, Inc., and Pacific Western Oil Corporation hold large leases in this field. At the time of this agreement they had 16 wells, and since then have drilled only 2 additional wells which were necessary to protect against offsets.

The shut-down of drilling continued throughout the field with the exception of a small area in the northwestern corner of section 28, where the producers were financially forced into an outlet to independent refineries at a low price and therefore had to produce a large amount of oil in order to have a sufficient income.

After the completion of the above-mentioned agreement, the Union Oil Co. (about October 10, 1938) again raised the prices of crude oil (the 16° gravity oil being raised to 70 cents) and accepted crude oil

from those producers that lived up to the agreement. During the period of negotiation for the agreement (from July to October 1938) when the producers were refused an outlet, such a collapse occurred in the field that oil was sold to independent refiners at a price of 20 cents to 30 cents a barrel. This was the start of the great waste which continued in certain areas where the operators, during that time, were forced to make unfavorable contracts. However, with the taking again of crude oil by the Union Oil Co. (about October 10) most of the operators adhered to their allotments.

In August 1939, without any explanation, the Union Oil Co. gave the producers in the field notice that they no longer would take their oil, and now we have before us the result of this unjust practice by that company which controls the only pipe line in the Santa Maria Valley field.

There was an immediate collapse of prices—some of the producers sold their oil from 25 to 30 cents a barrel and later on the prices declined still further. I understand that at present most of such oil is sold at 15 cents per barrel. The larger independent producers, who would not sacrifice their oil to such waste, were forced to shut in their wells while the Union Oil Co. continued, and still continues, to produce its wells on offsetting properties—in many cases almost surrounding some of the shut-in properties of the independents.

Most of the crude oil in this field that is refined by local refineries is refined into about 20 percent of gasoline, with some small losses in the refining process, and the rest of the 80 percent is put mostly into open pits. I doubt whether any of this residue ever will be recovered and made use of, and I understand that some of the refiners would be glad to pay somebody to remove it in order to get rid of it. There is one refinery in the Beacon area alone that has refined approximately 700,000 barrels of crude oil and now has, in open sumps, about 500,000 barrels of residue which no doubt will be total waste. I would like to have your committee take a look at these sumps with 500,000 barrels of tarry substance in them that is so heavy that water floats on top and it is hardly possible to put a stick into it.

Those producers that could not see this waste have their wells shut in and had to discharge their men (except watchmen), which is a tremendous loss to labor. Those producers now are also faced with lawsuits by landowners who claim that their properties are being drained on account of offset wells being continuously operated by the Union Oil Co.

After looking at these facts, as presented herein, we must come to the conclusion that though allocation by the Central Committee is a most fair and equitable method, curtailment in California, however, due to unjust practices, as shown in the Santa Maria Valley Oil Field by one of the major purchasing companies, has resulted in a terrible amount of waste.

It is far from me to try to advise your committee as to H. R. 7372. However, I would like to give you my opinion and suggest that either this bill, or an amendment to one of the existing laws as to the "Connally Hot Oil Act," contain the following basic principles:

(1) Allocation to the oil-producing States in accordance with figures of the Bureau of Mines on supply and demand.

(2) Set-up of commissions (such as, for instance in California, the Central Committee of California Oil Producers) for those States that

have no State oil-control bills, and have these commissions make the allocations among the various wells in the State and set the allowables for the various operators.

(3) Establish proratable takings by purchasers as established in most of the Mid-Continent Oil States so as to prevent situations arising as exist in the Santa Maria Valley and other fields in this State.

(4) The Federal Government to punish violators in States that have no curtailment acts after first giving such violators a right to be heard.

Respectfully submitted.

EMIL KLUTH,
*Vice President, George F. Getty, Inc., and
Pacific Western Oil Corporation.*

(Graph filed in committee records.)

Mr. COLE. What is your full name?

Mr. KLUTH. Emil Kluth.

Mr. COLE. Do you live in Los Angeles?

Mr. KLUTH. Yes, sir.

Mr. COLE. What is your profession, Mr. Kluth?

Mr. KLUTH. I am vice president of Geo. F. Getty, Inc., and Pacific Western Oil Corporation, which are two of the larger producing corporations in California. At least here is one man who comes out in favor of Federal conservation.

Mr. COLE. You are in favor of Federal bill H. R. 7372?

Mr. KLUTH. Yes, sir. [Laughter.]

Mr. COLE. Being sympathetic with the need of a little education along certain lines of the audience in this room, I do not know but what I should give you a little more time. Suppose you tell us briefly, Mr. Kluth, what the high spots of your statement will be.

Mr. KLUTH. In the first part it states the production in December was about 611,000 barrels daily. It is only about 13,000 barrels in excess of the States allotment, and it makes a good showing therefore. However, if we go into the details of the various fields, we find Kettleman Hills with an allotment of 34,000 barrels daily, and the statistics of December show a production of 52,000 barrels, or an overage of 53 percent. The Ventura Avenue allocation is about 31,000 barrels, and the production for the month in the Ventura Avenue field averaged 36,000 barrels, or 5,600 barrels in excess. In the Dominguez field the allotment was 16,000 barrels, and the production for the month was 18,000 barrels, or an average of 2,000 barrels in excess.

The total daily overage for these three fields alone amounted to 25,963 barrels daily, or a total for the month of December of 804,853 barrels, that is, in excess in December. In other words, the three main fields which are in the hands of the largest corporations are producing one-half of all of the overage produced in the State. The result, therefore, is that some of the other fields are discriminated against and have no market for their crude. And so, I tried to show you in the report the situation up at Santa Maria. We have a situation up there where some refiners take the crude, and take 20 percent out in gasoline—not quite that much possibly—and the rest of it they just dump into big sumps, which cannot be recovered. I can show you a sump up there, of one refiner, that has about 500,000 barrels

of residue oil in it. And you cannot put a stick in it and pull it out because it is so heavy, and water lies on top of it.

As to the conclusion I came to this: As far as the allocation in this State is concerned it is perfect. It is better than it is in other States. Where the allocation in various fields sometimes depends on those who make the strongest efforts in the field and who have the best representation for special allowables. The Central Committee here has a formula, and I have not found anybody who has ever had any complaint about it. Every well no matter where it is at the same depth and with the same potential gets the same amount of oil. You cannot argue between different allocations as there is only one formula. I might just leave my conclusion here. It is far from me to try to advise your committee as to H. R. bill 7372. However, I would like to give you my opinion and suggest that either this bill, or an amendment to one of the existing laws as to the Connally Hot Oil Act contain the following basic principles: First, allocation to the oil-producing States in accordance with figures of the Bureau of Mines on supply and demand. Second, a set-up of commissions such as for instance in California the Central Committee of California Oil Producers for those States that have no State oil control bills and have these commissions make the allocations among the various wells in the State and set the allowables for the various operators. In other words, leave the detail of allocation to practical oil men, and not to some young engineers that have some pipe dreams like we all had when we were young and just got out of college. After we got older we can see and know the practical end of it. Third, establish proratable takings by purchasers as established in most of the Mid-Continent oil States so as to prevent situations arising as exist in the Santa Maria Valley and other fields in this State.

Now, I could furnish you a copy of a map.

Mr. COLE. I have seen a copy of that. Where is it?

Mr. KLUTH. Here it is. It shows where one company has the only pipe line in the field and produces their wells. The rest of the operators have no market practically, and therefore they produce their wells against properties that have been shut in for months and months.

Mr. WOLVERTON. Does your statement tell more fully or rather deal more fully with the question of pipe lines?

Mr. KLUTH. Yes.

Mr. WOLVERTON. Did you make a recommendation with respect to pipe lines?

Mr. KLUTH. There is only one pipe line in the field, and that goes to tidewater.

Mr. WOLVERTON. That is a subject that I have indicated on more than one occasion, not only in these hearings but in other hearings that have been held over a period of 5 years, I have indicated my interest in the question of the effect of pipe lines. Under the ownership of major companies with respect to the effect of it upon independents, and also with respect to the price structure, and I had hoped that there would be someone from California that would have given information to the committee as to what the pipe-line situation is in this State. I regret that we have come to the conclusion of our session without anyone having said so. The President some years

ago recommended to Congress a divorcement of pipe lines, but that step has never been taken. In the meantime it created enough interest on my part to make inquiry as to what the situation was and whether it needed correction, and I have brought up the thought in every State in which we have held hearings. This is the first hearing that has been concluded without some presentation of that matter.

Mr. KLUTH. I think in the Mid-Continent that they have a system which works perfect. We have some affiliated companies in the Mid-Continent where we have no trouble whatever.

Mr. WOLVERTON. Is there any agency that controls the price that is charged by the pipe company for the use of its facilities, by what I will term your "independents," or other companies?

Mr. KLUTH. In this State?

Mr. WOLVERTON. Yes.

Mr. KLUTH. Well, the pipe lines are owned publicly.

Mr. WOLVERTON. They are owned publicly. Do you mean that they are owned by the State?

Mr. KLUTH. No; they are owned by the major oil companies, you might say; most of them.

Mr. WOLVERTON. Are those lines available for use by the independents?

Mr. KLUTH. I don't know just what the legal status is, but I think one of the speakers who has spoken before said you cannot force them to accept the oil unless they are willing to do it themselves.

Mr. WOLVERTON. Then they do not have the status of common carriers in this State?

Mr. KLUTH. No; they have not. That is the reason I would like to see them made public carriers; for instance, I could show you this situation: If a man up in the San Joaquin Valley has some oil and he wants to get it down to the basin, I think it costs him about a dollar a barrel to get it down here and that is more than the oil is worth, and unless he can find a purchaser up there he is practically up against it.

Mr. WOLVERTON. In a case of that kind, does the major company offer to buy the oil from him?

Mr. KLUTH. I think in most cases in the Valley that is the case, however, I am showing it particularly in my brief here, the situation in the Santa Maria field.

Mr. WOLVERTON. The situation I have in mind is this: That where a pipe line is not recognized as a common carrier and the individual or independent well owner seeks to dispose of his oil under the circumstances that you have mentioned—namely, the cost of transportation is greater than the value of the oil—is there any practice in vogue whereby the major company, who is the owner of the pipe line, will say to that individual, "We will buy your oil for a certain price?"

Mr. KLUTH. It used to be a good deal that way, but recently I think you will find it is the hardest thing in the world to sell your oil to any purchaser. Recently, in the last year—

Mr. WOLVERTON. I can readily understand that situation that the individual well owner who may be only operating one or a comparatively few wells is practically precluded in the disposition of his oil.

Mr. KLUTH. Very much so.

Mr. WOLVERTON. Has any effort at any time been made in this State to have legislation that would make such pipe lines common carriers?

Mr. KLUTH. Not to my knowledge.

Mr. WOLVERTON. One other point, and then I think I have covered what I have to ask. Does your statement as filed set forth any criticism of the practices now in effect in this State where allotments to one well may be transferred by the owner of that well to other wells owned by him or to other fields?

Mr. KLUTH. No; I have only brought out the fact of the tremendous overproduction in certain fields in the State, while as a whole, there is a very little overproduction, caused by a tremendous underproduction in other fields. It just means one company will overproduce in one field and underproduce in another field.

Mr. WOLVERTON. The situation I have in mind is this, where allotments are given to individual wells is it possible to transfer that allotment to another well under the same ownership?

Mr. KLUTH. No.

Mr. WOLVERTON. Well, I thought it was possible here. In other words—

Mr. KLUTH. If they own the property in fee.

Mr. WOLVERTON. Say a major company has several hundred wells and it gets an allotment for each of the wells. If it determines that it is cheaper to produce oil from this well than it is from this one—using an extreme case, could they shut down this well and this one over here take the allotment of the well that was shut down? Now, is that practiced?

Mr. KLUTH. I think that is practiced where there is no inequity as to the neighbor. I believe that is done out here on a large tract with very small wells.

Mr. WOLVERTON. That practice creates an advantage for the major companies or the individual who has numerous wells, does it not?

Mr. KLUTH. Yes.

Mr. WOLVERTON. Do you have any criticism or explanation or recommendation with respect to that situation?

Mr. KLUTH. No; because I think you find those are cases where they have small wells that are on the point of where they make a profit or not, and I think we should give them all the help we can. If they can make a small profit it is better than to shut the wells down.

Mr. WOLVERTON. Most of the witnesses who have appeared before the committee have identified themselves as being members of independent oil-producers associations. Have you attended our hearings?

Mr. KLUTH. Yes; from the very beginning.

Mr. WOLVERTON. Then you are familiar with the personnel of all the individuals who have appeared before us?

Mr. KLUTH. That is right.

Mr. WOLVERTON. Has the viewpoint expressed by them been any different than the viewpoint that is held by the major companies, do you know?

Mr. KLUTH. You mean in regard to this thing you are talking about now?

Mr. WOLVERTON. Yes—no; I mean on the general subject.

Mr. KLUTH. Oh, you mean on the subject of Federal Conservation Act?

Mr. WOLVERTON. Yes.

Mr. KLUTH. I have talked to many of them and I find that practically everyone of them is against Federal control.

Mr. WOLVERTON. How do you account for the fact that so far as I know they have not appeared in these hearings or had any representatives to speak for them?

Mr. KLUTH. Well, I couldn't answer that question why they didn't appear before your committee, Mr. Wolverton.

Mr. WOLVERTON. It does seem rather strange to me that the whole case has been presented from the viewpoint as we have heard it and that there has not as far as I know been any recognized representative of what might be termed the major oil companies here before us, and I, as one member of the committee, would be glad to be informed as to what their attitude might be that has seemed to preclude them from presenting their viewpoint to the committee.

Mr. COLE. You had one final conclusion to read, I believe, Mr. Kluth.

Mr. KLUTH. Yes.

Mr. WOLVERTON. Oh, I beg your pardon. I overlooked that.

Mr. KLUTH. Yes; No. 4. The Federal Government to punish violators in States that have no curtailment acts after first giving such violators a right to be heard.

Then I would like to say I hope my information can and will help you in your task on the conservation bill and also will be considered by the large producers in getting their production down in accordance with the allocation of the central committee.

Mr. COLE. Mr. Kluth, aside from your paper, in order to identify documents before me, are you familiar with the California State Planning Board?

Mr. KLUTH. No, I am not.

Mr. COLE. Is there anyone here who is?

Mr. MORTON. Isn't that the document I handed in, Mr. Chairman?

Mr. COLE. Oh, is this the one?

Mr. MORTON. Yes; that is part of my testimony, Mr. Cole. Has it been misplaced, because I don't want it to be. I gave the secretary a copy which was to go along with my testimony. You recall I read the foreword and the conclusion. You gave permission that the entire statement would be a part of the record because that is the history—

Mr. COLE. That is right. I remember now.

Mr. MORTON. Because it is a history of it in California.

Mr. COLE. This is a report by the California State Planning Board to the National Resources Committee.

Mr. MORTON. That was my point, that is right.

Mr. COLE. Of which we have been hearing so much about today.

Mr. MORTON. That is right.

Mr. COLE. A request of the national group for assistance as to the California situation.

Mr. MORTON. I would not want that to be misplaced or not accompany my testimony.

Mr. COLE. I suppose it is in.

Mr. MORTON. While I am on my feet Mr. Cole—

Mr. WOLVERTON. There was something that was not here at the time you were giving your testimony and you say that is a part of your testimony or is it supplemental?

Mr. MORTON. I am afraid you do not recall. This is a report which was concluded in the latter part of the year 1938. I offered it more for the purpose of historical matters on California oil and gas conservation plus the evidence I gave to the committee and had your permission that it would be considered a part of it and put into the record.

Mr. COLE. I recall now.

Mr. WOLVERTON. I have a question I would like to ask you.

Mr. MORTON. Would you rather finish with this gentleman first?

Mr. WOLVERTON. No. What I had in mind, I do not relish the idea you were putting in a supplemental statement to the testimony that you had given.

Mr. MORTON. Oh, no.

Mr. WOLVERTON. And thereby preclude any possibility for testifying.

Mr. MORTON. Oh, not the slightest. I would welcome any and all questions now or at any future time.

Mr. WOLVERTON. That is all right. I am glad it is not supplemental.

Mr. MORTON. It would be manifestly unfair to toss something into a record. You asked me, however—either you or Mr. Pearson, I don't remember which—for a citation with respect to a pipe-line decision in California, and inasmuch as I was, you might say, the first witness, except for the Governor, I didn't know myself but what pipe lines would be covered. You asked to have me give you a very brief digest of that decision and of our laws on the subject which lawyers on the committee would understand, not as a statement and not that you cannot question me about, but I thought it would be all right—

Mr. WOLVERTON. It would be very helpful.

Mr. MORTON. I wanted to make it very short because this pipeline situation is something I am very much interested in, although it does not affect me personally or my clients.

Mr. WOLVERTON. Your statement would not be an expression of opinion.

Mr. MORTON. No; not at all.

Mr. WOLVERTON. But merely the state of the law.

Mr. MORTON. Purely informative. In my original statement I stated I would file that with your committee, and I can file it now or put it in my corrected transcript.

Mr. COLE. I think all papers should be filed with the committee now. In the revision of testimony by any witnesses the committee will not permit extension of your remarks without approval, so if you send it on to Washington in that shape it will not be printed. There will be the usual corrections of your testimony permitted, but if there is something by way of revision in addition to what the record discloses that you want in and you consider it of importance if you will send it on to me at Washington I will let you know if it can be incorporated. I am sure there will be no difficulty about this.

Mr. MORTON. I just had this one thing in mind because, sir, there was no collaboration in the preparation of the papers submitted

before your committee. It was arranged somewhat hurriedly by telephone and we have endeavored to avoid repetition. Now, the reason why certain ones have not appeared here is utterly beyond my understanding. I will sign this, Mr. Chairman.

Mr. COLE. You may sign it now.

Mr. MORTON. And leave it with the secretary, because I had it prepared for that purpose. Thank you, gentlemen. I did not want to interfere, but in view of Mr. Wolverton's question on the pipeline situation and apparently to inform him on the status from a legal standpoint, and not a matter of opinion, I am glad to furnish this or any other digest on that subject and will send it to your secretary.

(The matter referred to follows:)

INDEPENDENT PETROLEUM & CONSUMERS ASSOCIATION,
Los Angeles, Calif., January 18, 1940.

HON. WILLIAM P. COLE, JR.,
Chairman, Subcommittee of the Committee
on Interstate and Foreign Commerce,
Los Angeles, Calif.

DEAR SIR: Attached hereto are true copies of those portions of the reports rendered to the Secretary of State of the State of California pertaining to campaign receipts in connection with proposition No. 5 appearing on the ballot November 7, 1938, frequently referred to as the Atkinson oil control bill.

Respectfully submitted,

INDEPENDENT PETROLEUM & CONSUMERS ASSOCIATION,
By HAROLD C. MORTON, Secretary.

SEPTEMBER 23, 1939.

HON. FRANK C. JORDAN,
Secretary of State,
Capitol Building, Sacramento, Calif.

DEAR SIR: In conformity with the law requiring a report to the secretary of state on campaign receipts and expenses in behalf of any ballot proposal, Independent Petroleum and Consumers Association submits herewith a statement in triplicate in connection with its campaign in behalf of the referendum against an act of the legislature known as chapter 811, statutes of 1939, proposition No. 5 appearing on the ballot of the special election to be held November 7, 1939. This report covers receipts and expenses up to and including the 23d day of September 1939.

RECEIPTS

Amounts received from persons, firms, or corporations as shown on the attached exhibit A, \$78,545.

EXHIBIT A.—Independent Petroleum and Consumers Association—Contributions received from persons, firms, or corporations

Alliance Petroleum Corporation, 417 South Hill St., Los Angeles, Calif.	\$350
Ambassador Petroleum Corporation, 2455 East 27th St., Vernon, Calif.	5,000
Basin Oil Co., 417 South Hill St., Los Angeles, Calif.	875
Bishop Oil Co., 315 Montgomery St., San Francisco, Calif.	100
Blackwell & Sunde, 3135 Cherry Ave., Long Beach, Calif.	50
Brain, Cooper & Honey, Inc., Long Beach, Calif.	50
California Alliance Petroleum Corp., 417 South Hill St., Los Angeles, Calif.	250
Coast Supply Co., 718 Gladys, Los Angeles, Calif.	100
Crail Bros., Long Beach, Calif.	400
El Camino Refining Co., 1623 Miller Ave., Los Angeles, Calif.	500
Eim Oil Co., Signal Hill, Calif.	100
Philip Hansen, 417 South Hill St., Los Angeles, Calif.	25

EXHIBIT A.—*Independent Petroleum and Consumers Association—Contributions received from persons, firms, or corporations.*—Continued

	<i>Amount</i>
Hildon Oil Co., 417 South Hill St., Los Angeles, Calif.....	\$875
Lyman C. Hisey, 417 South Hill St., Los Angeles, Calif.....	100
Hisey Petroleum Corporation, 417 South Hill St., Los Angeles, Calif.....	100
Jergins Oil Co., Jergins Building, Long Beach, Calif.....	6,000
A. S. Johnson Drilling Corp., Long Beach, Calif.....	250
Kelly Pipe Co., 525 North Mission Road, Los Angeles, Calif.....	100
George Kipp, 8616 Chestnut Ave., South Gate, Calif.....	100
Long Beach Harbor Oil Co., Long Beach, Calif.....	500
Mercury Petroleum Corp., Venice, Calif.....	100
Morton & Elder, 523 West 6th St., Los Angeles, Calif.....	500
Natural Gasoline Co., 2927 229th St., Torrance, Calif.....	500
F. E. Nearin, 4112 East Washington Blvd., Los Angeles, Calif.....	100
Operator Oil & Refining Co., Hynes, Calif.....	250
Edward D. Power, 523 West 6th St., Los Angeles, Calif.....	500
Edward R. Rice, 417 South Hill St., Los Angeles, Calif.....	100
Ring Oil Co., 315 West 9th St., Los Angeles, Calif.....	3,000
Royalty Service Corp., 609 South Grand Ave., Los Angeles, Calif.....	5,000
Service Tank Lines, 112 West 9th St., Los Angeles, Calif.....	250
Severns Drilling Co., 639 South Spring St., Los Angeles, Calif.....	250
E. G. Starr, 417 South Hill St., Los Angeles, Calif.....	3,650
Star Petroleum Co., 112 West 9th St., Los Angeles, Calif.....	1,000
Superior Oil Co., 601 West 5th St., Los Angeles, Calif.....	29,500
Twin Bell Oil Syndicate, 112 West 9th St., Los Angeles, Calif.....	500
Universal Consolidated Oil Co., 417 South Hill St., Los Angeles, Calif.....	11,000
West American Oil, Long Beach, Calif.....	500
Wilshire Annex Oil Co., 2455 East 27th St., Vernon, Calif.....	1,000
Wilshire Oil Co., 2455 East 27th St., Vernon, Calif.....	5,000
Norman Work, 417 South Hill St., Los Angeles, Calif.....	20
Total	78,545

OCTOBER 28, 1939.

Hon. FRANK C. JORDAN,

Secretary of State, Capitol Building, Sacramento, Calif.

DEAR SIR: In conformity with the law requiring a report to the secretary of state on campaign receipts and expenses in behalf of any ballot proposal, Independent Petroleum & Consumers Association submits herewith its second statement in triplicate in connection with its campaign in behalf of the referendum against an act of the legislature known as chapter 811, statutes of 1939, proposition No. 5, appearing on the ballot of the special election to be held on November 7, 1939. This second statement, including a recapitulation of the first statement filed, covers the receipts and expenses for the period beginning September 24, 1939, and ending on October 21, 1939, both dates inclusive, as follows:

RECEIPTS

Amounts received from persons, firms, or corporations as shown on the attached exhibit A, \$154,642.75.

Independent Petroleum and Consumers Association—Contributions received from persons, firms, or corporations

	<i>Amount</i>
Bergstrom Well, No. 3, 170 East California St., Pasadena, Calif.....	\$50.00
Beverly Montebello Oil Co., 617 South Olive St., Los Angeles, Calif....	50.00
Bishop Oil Co, 315 Montgomery St., San Francisco, Calif.....	50.00
Amelia M. N. Bixby Co., Long Beach, Calif.....	200.00
Brookline Oil Co., 650 South Spring St., Los Angeles, Calif.....	250.00
El Camino Refining Co., 1623 Miller Ave., Los Angeles, Calif.....	250.00
C. Hart Chesley & Son, 2290 Eucalyptus Ave., Long Beach, Calif.....	10.00
Caminol Co., Ltd., The, 112 West 9th St., Los Angeles, Calif.....	35,400.00
D'Angelo Well No. 1, 170 East California St., Pasadena, Calif.....	50.00

Independent Petroleum and Consumers Association—Contributions received from persons, firms, or corporations.—Continued

	<i>Amount</i>
Dabney Well, No. 1, 170 East California St., Pasadena, Calif.....	\$50.00
Fletcher Oil Co., 530 West 6th St., Los Angeles, Calif.....	1,000.00
Fruitvale Well, No. 1, 170 East California St., Pasadena, Calif.....	50.00
A. Haines, 36th and Pacific, Long Beach, Calif.....	50.00
Philip Hansen, 417 South Hill St., Los Angeles, Calif.....	25.00
Hartman Ranch Co., Ventura, Calif.....	50.00
Hilldon Oil Co., 417 South Hill St., Los Angeles, Calif.....	1,000.00
Hurley-Kelley, Long Beach, Calif.....	500.00
Iroquois Oil Co., 215 West 7th St., Los Angeles, Calif.....	150.00
Jergins Oil Co., Jergins Building, Long Beach, Calif.....	5,000.00
A. S. Johnston Drilling Corporation, 2555 Temple Ave., Long Beach, Calif.....	250.00
Krieger Oil Co., 325 West Compton Blvd., Clearwater, Calif.....	250.00
Long Beach Harbor Oil Co., 417 South Hill St., Los Angeles, Calif.....	1,000.00
Martin Lumber & Materials Co., Long Beach, Calif.....	10.00
McCarthy, Neil S., 510 West 6th St., Los Angeles, Calif.....	100.00
Mosier Well, No 1, 170 East California St., Pasadena, Calif.....	50.00
National Well, No. 1, 170 East California St., Pasadena, Calif.....	50.00
Raleigh Oil Co., 215 West 7th St., Los Angeles, Calif.....	50.00
El Rancho Oil Co., 326 Treat Ave., San Francisco, Calif.....	500.00
Ring Oil Co., 315 West 9th St., Los Angeles, Calif.....	2,500.00
Santa Fe Well, No. 1, 170 East California St., Pasadena, Calif.....	50.00
Santa Fe Well, No. 2, 170 East California St., Pasadena, Calif.....	50.00
Santa Fe Well, No. 3, 170 East California St., Pasadena, Calif.....	50.00
Star Petroleum Co., 112 West 9th St., Los Angeles, Calif.....	1,000.00
E. G. Starr, 417 South Hill St., Los Angeles, Calif.....	750.00
Superior Oil Co., 601 West 5th St., Los Angeles, Calif.....	78,607.75
Twin Bell Oil Syndicate, 112 West 9th St., Los Angeles, Calif.....	500.00
Twining Well No. 2, 170 East California, Pasadena, Calif.....	50.00
United Montebello Oil Co., Montebello, Calif.....	50.00
Universal Consolidated Oil Co., 417 South Hill St., Los Angeles, Calif.....	14,000.00
Western Oil Well Cementing Co., 3365 Cherry Ave., Long Beach.....	100.00
Whiston & Cox Oil Co., 606 Bank of America Bldg., Whittier, Calif.....	50.00
Whittier Santa Fe Springs Oil Syndicate No. 1, 145 Greenleaf Ave., Whittier, Calif.....	150.00
Wilshire Oil Co., 2455 East 27th St., Vernon, Calif.....	10,000.00
Wood-Callahan Oil Co., 3505 American Ave., Long Beach, Calif.....	200.00
Total.....	154,642.75

DECEMBER 5, 1939.

HON. FRANK C. JORDAN,

Secretary of State, Capitol Building, Sacramento, Calif.

DEAR SIR: In conformity with the law requiring a report to the secretary of state on campaign receipts and expenses in behalf of any ballot proposal, Independent Petroleum and Consumers Association submits herewith its third statement in triplicate in connection with its campaign in behalf of the referendum against an act of the legislature known as chapter 811, Statutes of 1939, proposition No. 5, which appeared on the ballot of the special election held on November 7, 1939. This third statement, including a recapitulation of the first and second statements filed, covers the receipts and expenses for the period beginning October 23, 1939, and ending on November 30, 1939, both dates inclusive, as follows:

Receipts

Contributions received from persons, firms, or corporations as shown on the attached exhibit A.....	\$129,113.95
Loans received from persons, firms, or corporations as shown on the attached exhibit B.....	26,000.00
Total receipts.....	155,113.95

EXHIBIT A.—*Independent Petroleum and Consumers Association—Contributions received from persons, firms, or corporations*

Atlantic Oil Co., 2545 Lewis Ave., Long Beach, Calif.....	\$1,000.00
Atlas Supply Co., 637 East Willow, Long Beach, Calif.....	50.00
Axis Petroleum, Canton St., Long Beach, Calif.....	25.00
Baker, V. P., Long Beach, Calif.....	25.00
Bakersfield Pipe & Supply Co., Bakersfield, Calif.....	50.00
Bender, E. A., Pasadena, Calif.....	25.00
Blackwell & Sunde, 3135 Cherry Ave., Long Beach, Calif.....	50.00
Bolsa Chica Corporation, 417 South Hill St., Los Angeles, Calif.....	250.00
Brooks, S. M., Cherry Ave., Long Beach, Calif.....	100.00
Calver, Richard J. O., Los Angeles, Calif.....	10.00
Caminol Co., Ltd., 112 West Ninth St., Los Angeles, Calif.....	25,000.00
Cheed, J. E., Los Angeles, Calif.....	5.00
Coast Supply Co., 2941 Cherry Ave., Long Beach, Calif.....	25.00
Cox, M. A., 2870 American Ave., Long Beach, Calif.....	50.00
Cremac Oil Corporation, Los Angeles, Calif.....	100.00
Daigh & Stewart Truck Co., 2102 East Spring, Long Beach, Calif.....	50.00
Davis Investment Co., 2700 East 21st St., Long Beach, Calif.....	1,000.00
Decatur, Virginia, Trustees, Los Angeles, Calif.....	50.00
El Camino Refining Co., 1623 Miller Ave., Los Angeles, Calif.....	550.00
El Tejon Oil & Refining Co., 555 South Flower St., Los Angeles, Calif.....	500.00
Ford Alexander Gum Perforating, Inc., 115 South Milton Ave., Whittier, Calif.....	25.00
Fuller, F. T., Los Angeles, Calif.....	50.00
Graham Loftus Oil Corporation, 811 West Seventh St., Los Angeles, Calif.....	1,000.00
Hancock Banning Heirs, Los Angeles, Calif.....	300.00
Hines, R. E., 112 West Ninth St., Los Angeles, Calif.....	150.00
Iroquois Oil Co., 215 West Ninth St., Los Angeles, Calif.....	150.00
Jergins Oil Co., Jergins Bldg., Long Beach, Calif.....	5,010.00
Keck, William M., Jr., 601 West Fifth St., Los Angeles, Calif.....	300.00
Kelly Pipe Co., 525 North Mission Road, Los Angeles, Calif.....	100.00
Kipp, George, 8616 Chestnut Ave., South Gate, Calif.....	100.00
L. M. S. Oil Co., Los Angeles, Calif.....	50.00
Lacol Oil Co., Ltd., Los Angeles, Calif.....	75.00
Lebow-McNee Oil Co., Los Angeles, Calif.....	100.00
Long Beach Harbor Oil Co., 417 South Hill St., Los Angeles, Calif.....	1,000.00
M. C. A. Drilling Co., 617 South Olive St., Los Angeles, Calif.....	100.00
McKeon, John, 704 South Spring St., Los Angeles, Calif.....	100.00
McKeon Associates, 704 South Spring St., Los Angeles, Calif.....	100.00
McQuiston, A. F., Los Angeles, Calif.....	50.00
Merritt Annex Oil Co., 325 West Eighth St., Los Angeles, Calif.....	250.00
Midway Fishing Tool Co., Cherry Ave., Long Beach, Calif.....	100.00
Mitchell Trustees, Ltd., Long Beach, Calif.....	50.00
Morton, Harold C., Pacific Mutual Bldg., Los Angeles, Calif.....	850.00
Mutual Well No. 1, Long Beach, Calif.....	50.00
Newman, John, Los Angeles, Calif.....	500.00
Oceanic Oil Co., 730 South Grand Avenue, Los Angeles, Calif.....	150.00
Pathfinder Petroleum Co., Los Angeles, Calif.....	100.00
Port Oil Co., Los Angeles, Calif.....	250.00
Rainey, Garnet C., Los Angeles, Calif.....	500.00
Raleigh Oil Co., 215 West Seventh St., Los Angeles, Calif.....	50.00
Ring Oil Co., 315 West Ninth St., Los Angeles, Calif.....	3,500.00
Rohring, C. M., Los Angeles, Calif.....	50.00
Sillers Paint & Varnish Co., 8316 East Sixty-first St., Los Angeles, Calif.....	25.00
Smith, Lon V., Los Angeles, Calif.....	100.00
Southern California Petroleum Corporation, Los Angeles, Calif.....	500.00
Stanton Oil Co., 2780 St. Louis Ave., Long Beach, Calif.....	25.00
Star Petroleum Co., 112 West Ninth St., Los Angeles, Calif.....	500.00
Starr, E. G., 417 South Hill St., Los Angeles, Calif.....	36,600.00
Starr, E. G., trustee, 417 South Hill St., Los Angeles, Calif.....	128.95
Stearns, R. E., 417 South Hill St., Los Angeles, Calif.....	100.00
Superior Oil Co., 601 West Fifth St., Los Angeles, Calif.....	20,000.00
Two Macks Electric, Whittier, Calif.....	100.00

EXHIBIT A.—*Independent Petroleum and Consumers Association—Contributions received from persons, firms, or corporations.—Continued*

Universal Consolidated Oil Co., 417 South Hill Street, Los Angeles, Calif.....	\$15,000.00
Valley Pipe & Supply Co., Bakersfield, Calif.....	10.00
Vulcan Oil Co., Los Angeles, Calif.....	100.00
Western Oil Fields Supply Co., Bakersfield, Calif.....	100.00
M. H. Whittier Co., Ltd., 815 Edison Bldg., Los Angeles, Calif.....	1,000.00
Willis, Cornelius G., Subway Terminal Bldg., Los Angeles, Calif.....	500.00
Wilson, W. D., 730 South Grand Ave., Los Angeles, Calif.....	50.00
Williams, C. G., 417 South Hill St., Los Angeles, Calif.....	100.00
Wilshire Oil Co., 2455 East Twenty-seventh St., Los Angeles, Calif.....	10,000.00
Wiswall, Mrs. C. E., 1455 North Hayward, Los Angeles, Calif.....	100.00
Total.....	129,113.95

EXHIBIT B.—*Independent Petroleum and Consumers Association—Loans received from persons, firms, or corporations*

Caminol Co., Ltd., 112 West Ninth St., Los Angeles, Calif.....	\$1,000.00
Superior Oil Co., 601 West West Fifth St., Los Angeles, Calif.....	25,000.00
Total.....	26,000.00

Mr. LEA. I was the one who made the request.

Mr. MORTON. Was it you? I didn't remember.

Mr. LEA. You remember I asked if the provision for the pipe-line transportation was in the bill, and I stated that I was interested in the court's interpretation.

Mr. MORTON. Yes. We have statutes purporting to make pipe lines common carriers and that is what I think this committee should have, plus the decisions, and I am sure Mr. Wolverton and the other members of the committee will be glad to have it.

Mr. WOLVERTON. May I ask just one question? After reflecting on the answer that you gave, Mr. Kluth, to my inquiry as to whether you knew whether the viewpoint of the major companies with respect to legislation was similar to that which has been expressed by the representatives of the independent associations that have been here, you qualified it by asking me did I refer to Federal legislation and I said, "yes," and you said you thought they would oppose it the same as the independents.

Mr. KLUTH. No, I wouldn't state that, because I do not know the stand of the major organizations.

Mr. WOLVERTON. Well, what I want to do is to go a step further than Federal control, and it was evidently represented the campaign that was conducted against the Atkinson bill that one of the large major companies was greatly interested in the adoption of the Atkinson bill, and it raises interest in my mind that if such were the case, why, then, were they not here to justify State legislation as opposed to Federal legislation?

Mr. KLUTH. Well, I could not answer that.

Mr. WOLVERTON. Well, I have at least satisfied myself by giving expression of my thought in the form of a question to you.

Mr. COLE. Thank you, Mr. Kluth.

Mr. KLUTH. Thank you.

Mr. COLE. Now, are there any other gentlemen in the room who want to leave a statement with the committee for the record? Are there any gentlemen here who have prepared statements which they want to present? Have you a statement?

STATEMENT OF ERNEST J. BUTTNER

Mr. BUTTNER. I would like about 3 minutes to speak as a registered voter and citizen of the State of California. I haven't any interest in the oil business.

Mr. COLE. Anyone else in the room desiring to offer a statement? Step up. What is your name?

Mr. BUTTNER. Ernest J. Buttner.

Mr. COLE. What is your business?

Mr. BUTTNER. I am a writer.

Mr. COLE. A writer on the subject of oil?

Mr. BUTTNER. No; just general subjects and syndicate writing, canned news.

Mr. COLE. All right.

Mr. BUTTNER. I was going to vote for the passage of the Atkinson oil bill when I saw that the Army and Navy were for it by the billboards, but when I saw that Herbert Hoover was for it also, it made me think differently.

Mr. WOLVERTON. I think sometimes Mr. Hoover's statements do make people think differently.

Mr. BUTTNER. I wondered particularly how oil and water could mix, in other words, and I made it my business to inquire of Mr. Atkinson at a public gathering if it was a matter of conservation. He said it was and I asked, if that were true, then why was it that the discovery of new wells or the impetus of that discovery always seemed to keep above consumption and we had little to worry about if discovery was constantly keeping ahead of consumption; and another question that came to my mind and that of friends and we discussed it in meetings and I again made it my business to be informed on the subject, was how was it that our registration in this State, two to one, with a Governor, that it was defeated, his party repudiated his position, it being a party bill, repudiated the Governor's position in that he made it a party bill and we went down the line and endeavored then to find out more about the oil business as voters, people from our district and we found, if conservation took place according to that bill or, rather, control, that it would control the independents who employed the greatest number of people and cut out exports to some degree or whatever degree they were exporting and allowing Mexican oil, which was owned principally by the major oil companies, to be exported in the place of the small amount that the independents were exporting.

Mr. COLE. Thank you very much. There being no other lady or gentleman in the room present who wants to be heard, at this point I want to again acknowledge the presence on the committee of the chairman of the Interstate and Foreign Commerce Committee of the House of Representatives, through whose decision this subcommittee is in existence. We have been delighted to have had Mr. Lea with us. From here we are to proceed north through many of the other oil fields before leaving the State Sunday night, on an inspection tour, some of which I will mention in the record. But before adjourning the meeting, I recognize Mr. Lea. Chairman Lea.

[Applause.]

**STATEMENT OF HON. CLARENCE F. LEA, CHAIRMAN, COMMITTEE
ON INTERSTATE AND FOREIGN COMMERCE, HOUSE OF REPRESENTATIVES**

Chairman LEA. Mr. Chairman and gentlemen, we are about to conclude the hearing of the California section of this investigation. Before doing so, as chairman of the Interstate and Foreign Commerce Committee of the House of Representatives, I desire to express appreciation of the many courtesies extended to the members of our committee by the Governor, representatives of the petroleum industry, and by the many citizens of Los Angeles who have made our visit more interesting and profitable.

Congress functions under what is known as the committee system. That is a system of specialization of work on legislation before the Nation's legislative body. Our membership is divided into various committees, the jurisdiction of which are defined by the Rules of the House. The object of this committee plan is to permit, by special committees so selected, a more thorough study of problems of legislation than would be possible by the general membership of the House. A unique feature of the congressional legislative system is the continuity of membership on important committees. A member once assigned to a committee is permitted to remain in order that he may give Congress the benefit of his experience and study on matters coming within the jurisdiction of that particular committee.

Congress has assigned to our committee the task of investigating the problems of the oil industry. It is our duty to study the facts and place ourselves in position to give the House of Representatives accurate information and well-considered recommendations as to the legislative duty of Congress in reference to the problem.

There are 25 members of our committee. As chairman, I appointed 5 of its members to serve as a subcommittee to give a more intensive study to this particular problem. The members of this subcommittee are men experienced in congressional work. They are men of understanding, convictions, and purpose. They, and the other members of our committee, did not enter upon this investigation with any pet theories to advance. We have desired to have no opinions that would interfere with the careful and fair investigation of these problems, with a view of performing our duty to the Congress and the country. It should be understood that this committee is not tied to the specific provisions of the bill before us. This bill serves as a basis for our hearing, but in a more accurate sense the committee is dealing with the subject as a problem, rather than the mere consideration of a bill. We at any time welcome constructive criticism and suggestions that may help the committee to reach correct conclusions before we finally make any recommendation to Congress.

The development of the petroleum industry is a marvelous chapter in the economic history of our country. Only a generation ago it was a small, though important, enterprise. Since then it has become one of our greatest industries. With it has followed a widespread readjustment of our economic life, to take advantage of the developments that our oil products made possible. Oil, and its derivatives, are among the most valuable of our economic products. Oil is responsible for the development of the internal combustion engine, and affords

motive power for a vast transportation on water, land, and in the air.

Manifestly, the oil supply, however great it may be, is a non-replenishable product.

Our Supreme Court recognized it to be within the power of the State to protect the rights of adjoining landowners, and the Supreme Court of the United States adopted the language of our Supreme Court in which it said that the State had a right to act "in view of the right of the public to prevent the waste of that which cannot be replaced."

The rule announced by the Supreme Court does not destroy the rights of private ownership, but properly recognizes in the Government the power, and when necessary, the duty to protect the public interests against the needless waste of one of our most valuable resources.

I believe that general rule consistent with private ownership, and the necessary and proper administration of government. This does not mean that we should regulate an industry for the mere purposes of regulation. Manifestly, the power of regulation should not be so exercised as to prevent, or unnecessarily interfere with the industry in performing its service to the Nation. The responsibility of the Government begins when waste becomes important for the protection of the public.

In the last 30 years our country has made radical adjustments and advancements in the utilization of the products of the petroleum industry. We have a large supply for at least a good many years to come. If we should find it necessary to readjust our economic system to the absence of a substantial supply of petroleum, it would work a great hardship upon the Nation. Every reasonable precaution should be made to guard against the premature arrival of such an unfortunate situation.

We have other possible sources of substitute fuels that could relieve the shock of this readjustment, but there is no known substitute fuel that can now fully take the place of oil. Oil shales, and coal, and certain vegetable products, can be converted into substitute fuels, but such conversion, so far as at present known, involve many difficulties, and a greater expense that would substantially deprive the country of the advantages now given it by the oil industry. Every reasonable precaution is justified to protect the country against the premature exhaustion of so great a resource.

We can sympathize with the industry in its apprehension as to the personal equation in the administration of any regulatory author by government, whether State or national. The committee itself fully appreciates that difficulty of regulation. It is the difficulty of filling responsible positions with men of experience, disposition, and ability to justly and competently handle their important problems. This committee is disposed to use every precaution within its power to guard against such administration. Our committee is rather committed to the policy of guarding against abuse of administration by requiring hearings to precede regulations; that they be held after proper notice; that a full record be made; that the record be complete; that the right of court review be granted, and that the regulations adopted must be justified by substantial evidence within the record at the hearing.

In conclusion, I wish to assure you that in whatever action our committee will take, it will attempt to pursue a course that gives due respect to the legitimate rights of the industry, having in mind that proper relation it should occupy in the public interest of the country.

[Applause.]

Mr. COLE. Gentlemen, before adjourning the meeting, on behalf of the committee, I want to thank those who appeared before us, and others with whom I have corresponded with reference to the hearing, for the very full and interesting fashion in which you have presented the problem to us as you find it in this State. While we have suffered the penalty of not being able to get out of the building very much and enjoy the beauty of this city and some of the hospitality which has been offered to us, we are glad that the time we have been permitted to stay here has been sufficient to meet all the requests of the people from the city and State to present their testimony to this committee for the record.

We leave tonight or tomorrow morning very early. We thank those who have been responsible for the very splendid arrangements which have been made for us in every way, and look forward with interest to a trip through Buena Vista, San Joaquin, Bakersfield, Kettleman, and into the new fields farther north: Coalinga; and finally into San Francisco. The hearings will be resumed in Washington on Monday, February 5, at which time the producing States will be heard, the first State being Kansas, with the Governor of that State, Governor Ratner, appearing in person.

I announce before adjournment with a great deal of sadness that a message has just been delivered to me that hope for the recovery of Senator Borah has been given up and I have little doubt that the news to follow possibly tomorrow morning or a little later, will not be as we had hoped.

We adjourn until February 5 with the hope and the prayer at this time that our colleague, the Honorable William E. Borah, Senator from Idaho, may recover.

(Thereupon the hearing was adjourned.)

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